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2001



Report of the
**Commissioner of the
Environment and
Sustainable Development**
to the House of Commons

**The Commissioner's Perspective—2001
Foreword and Main Points**



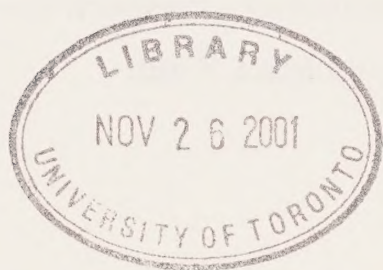
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Foreword and Main Points

The 2001 Report of the Commissioner of the Environment and Sustainable Development comprises seven chapters, The Commissioner's Perspective—2001, and a Foreword. The main table of contents is found at the end of this publication.



This report is available on our Web site at www.oag-bvg.gc.ca/environment

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AUDITOR GENERAL OF CANADA
COMMISSIONER OF THE ENVIRONMENT
AND SUSTAINABLE DEVELOPMENT



VÉRIFICATEUR GÉNÉRAL DU CANADA
COMMISSAIRE À L'ENVIRONNEMENT
ET AU DÉVELOPPEMENT DURABLE

To the Honourable the Speaker of the House of Commons:

On behalf of the Auditor General of Canada, I have the honour to transmit herewith my Report to the House of Commons for the year 2001, to be laid before the House in accordance with the provisions of section 23(3) of the *Auditor General Act*.

A handwritten signature in dark ink, reading "Johanne Gélinas".

Johanne Gélinas
Commissioner of the Environment
and Sustainable Development

OTTAWA, 2 October 2001

To the reader:

I welcome your comments and suggestions on this Report and other issues related to the environment and sustainable development. I can be reached at the following:

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Foreword



Report of the Commissioner of the Environment and Sustainable Development—2001

Foreword

As Commissioner of the Environment and Sustainable Development, I am pleased to present the 2001 Report for tabling in the House of Commons.

This Foreword is followed by The Commissioner's Perspective—2001, and the Main Points from each chapter. The Report contains seven chapters:

Great Lakes and St. Lawrence River Basin

- 1 A Legacy Worth Protecting: Charting a Sustainable Course in the Great Lakes and St. Lawrence River Basin

Managing for Sustainable Development

- 2 Sustainable Development Management Systems
- 3 Reporting on Sustainable Development: Is the System Working?
- 4 Assessing the First Sustainable Development Strategies
- 5 Integrating the Social Dimension: A Critical Milestone

Follow-up

- 6 Climate Change and Energy Efficiency: A Progress Report

Petitions

- 7 Connecting With Canadians: The Environmental Petitions Process



The Commissioner's Perspective—2001

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The Commissioner's Perspective—2001



Introduction

1. A year after assuming my new duties as Commissioner of the Environment and Sustainable Development, I welcome this opportunity to broadly outline for members of Parliament and Canadians the direction my work will take in the future.
2. As most parliamentarians know, the position of Commissioner of the Environment and Sustainable Development was created in 1995 by amendments to the *Auditor General Act*.
3. The vision statement of the Office of the Auditor General now says, "We are committed to making a difference for the Canadian people by promoting, in all our work for Parliament, answerable, honest and productive government that reflects a commitment to sustainable development."
4. The concept of sustainable development is integral to my duties as Commissioner. It is the focal point of my Office's role as environmental watchdog.
5. Before moving to the specifics of those duties, I would like to share my views on the federal government's role in sustainable development and some personal concerns about environmental issues.

Concerns about our environmental, economic, and social well-being

6. All Canadians share responsibility for moving Canada toward sustainable development. However, their governments, at all levels, have an essential role in this.
7. I have always believed that the Government of Canada has a vital role to play in pulling together and orchestrating common action at the federal, provincial, territorial, regional, and municipal levels. Before coming to Ottawa, I had ample opportunity to form some distinct views on the pressing environmental and sustainable development issues facing Canada. I also had impressions about the role of the federal government and its opportunities for leadership as a key player on the national and the international stage.
8. Any newcomer to Ottawa notes the complexity of the federal government's work. As the largest enterprise in Canada, with so many different facets, responsibilities, and roles, it has to consult, listen, weigh and

balance, and make wise decisions. Sustainable development is clearly a work in progress, playing out on a complex stage with many different actors. Complexity is a fact of life, however, and cannot be allowed to delay action and innovation.

9. As a Canadian concerned about our environmental, economic, and social well-being, I have five particular concerns. First is the apparent decline in recent years of Canada's credibility as a world leader, committed to helping create a far-reaching and visionary global agenda for the environment and sustainable development. Second, as a parent I am increasingly concerned about the environmental health risks facing our children. Third, as I observe the trend toward a global economy, with its proliferation of regional trading blocs, I wonder whether our country can ensure compliance with environmental and social safeguards. Fourth, I see the growing pressure on Canada's natural resources—our fresh water and our energy reserves, for example—that could alter the quality of the environment and counteract the principles of sustainable development. I also see pressures to increase our exports, which in turn could present risks to the environment. And fifth, I see that our behaviour has not always coincided with the values we express. For example, we continue to be among the world's highest per capita users of water and energy, and we continue to buy sport utility vehicles, which are not known for their energy efficiency.

10. To better understand the principles of sustainable development and the importance of applying them, some reflections on the concept could be useful.

Looking back to *Our Common Future*

A future in peril

11. In 1987 the World Commission on Environment and Development, chaired by former Prime Minister of Norway Gro Harlem Brundtland, released *Our Common Future*. That report was seen by many as the decade's most important document on the future of the world. The report popularized the term "sustainable development."

12. *Our Common Future* (also known as the Brundtland Report) issued a call for action. It was a call to face the future and safeguard the interests of coming generations against the increasingly visible and serious environmental effects of short-sighted economic development, of preoccupation with economic growth at all costs. *Our Common Future* served notice that the time had come for a marriage of economy, ecology, and society. Governments and their constituents could then take responsibility not just for environmental damage but for the policies that caused the damage. *Our Common Future* was not bleak. The report said we could change our course, but we had to act quickly.

Living on the interest

Humanity has the ability to make development sustainable—to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits—not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities...Poverty is not only an evil in itself, but sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfil their aspirations for a better life. A world in which poverty is endemic will always be prone to ecological and other catastrophes.

(*Our Common Future*, World Commission on Environment and Development, 1987)

13. Over the years, I have seen that to those working in the field, sustainable development incorporates two recurring themes. First, our generation has to live on the interest of Canada's abundant natural capital. We cannot deplete the principal—energy and mineral resources, wildlife and flora, habitat, air, and water. Second, sustainable development calls for closing the disparities in wealth and sharing it—not only between North and South, East and West but also between present and future generations.

A prominent role for Canada

14. In the 1970s, Canada began to play a prominent role in shaping the international environmental agenda. In the years that followed, Canada continued to gain respect as an environmental leader by providing the World Commission on Environment and Development with two key players, James McNeill as Secretary General and Maurice Strong as a member. In 1992, Maurice Strong was appointed Secretary General of the United Nations Conference on Environment and Development, in Rio De Janeiro. Canada came to this "Earth Summit" with a strong environmental agenda, pushing for the adoption of the United Nations Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, Agenda 21, and the Rio Declaration. At the summit, Canada's Prime Minister exhorted governments to respond to the call for action in *Our Common Future*:

What remains is for governments to provide the leadership the world so desperately needs. Let us find that will and marshal that leadership to the task at hand on behalf of the five billion people we represent. Our children, the Rio generation, will be our judges and our beneficiaries.

(Brian Mulroney, Prime Minister of Canada, *United Nations Conference on Environment and Development*, Rio de Janeiro, 1992)

15. Reiterating their commitment to sustainable development, world leaders will reconvene in Johannesburg, South Africa, for Earth Summit 2002. They will examine the progress made so far and explore ways to broaden and accelerate the move to sustainable development. Almost 10 years after the first Earth Summit, what will our judges—the Rio generation—think of the progress we have made?

The government's response to concerns about environmental degradation

16. Public opinion polls in the late 1980s and early 1990s showed consistently that Canadians were concerned about threats to life's three essentials—clean air, water, and land. They were concerned about acid rain, sustaining their renewable resources, and protecting forests, lakes, rivers, and wildlife. In 1990, the government responded with Canada's Green Plan.

17. The Green Plan was a co-ordinated federal approach that recognized the federal government's key role in securing a safe and healthy environment and a sound and prosperous economy, for current and future generations. Five years after its adoption, the Green Plan was no longer a national plan.

18. In 1995, amendments to the *Auditor General Act* that established my position also required 24 departments and agencies to prepare sustainable development strategies. Now, 29 departments and agencies have met this requirement, some of them voluntarily. Those amendments, along with *A Guide to Green Government* (1995), changed the way the government planned to integrate sustainable development into its own operations as well as its policies and programs. The amendments, supported by the Guide, moved accountability for "greening" down to individual ministers rather than focussing on one plan for the whole government.

19. Furthermore, the greening of government does not necessarily mean all of government. Given the sweeping promises the government has made to Canadians over the years, I had assumed that it had the same environmental and sustainable development expectations of all government entities. However, this is not the case. Significant parts of the government are not subject to key aspects of greening. Not all government entities are required to prepare a sustainable development strategy under the 1995 amendments to the *Auditor General Act*. Crown corporations are an example.

20. And there is a growing array of new governance arrangements, or "near government" arrangements, such as partnerships between the federal government and non-government organizations. How should the rules intended to promote green government apply to such forms of "near government"? Are these forms of arrangement subject to an environmental audit?

21. Two other questions concern me about the requirement for several departments and agencies to prepare sustainable development strategies.

- Are these strategies more than a paper exercise? Have things really changed? Will the strategies result in tangible improvements to the

environmental, social, and economic well-being of all Canadians in this and future generations?

- Can Canada move forward, and honour the call to action of 15 years ago, with the commitments in the second generation of sustainable development strategies? Do the strategies of each department and agency add up to a coherent federal strategy?

22. I am making a commitment to Parliament and the Canadian people to continue to address these fundamental questions in my future reports. I will seek to determine whether the Government of Canada is assuming its responsibilities, taking account of the environmental concerns of Canadians, and trying to find feasible, practical solutions.

My 2001 Report

23. My first report as Commissioner sets out three broad areas of federal activity—the Great Lakes and St. Lawrence River basin (Chapter 1), managing for sustainable development (chapters 2 to 5) and climate change and energy efficiency (Chapter 6). I discuss the environmental petitions process in Chapter 7. A brief summary of the contents of these chapters follows. In addition, the main points of each chapter are reprinted in this volume.

Great Lakes and St. Lawrence River basin

24. Sixteen million Canadians live in the Great Lakes and St. Lawrence River basin. The term refers to the natural watershed boundaries of the lakes and river, including much of the surrounding land in Ontario and Quebec. The Great Lakes are the largest system of fresh surface water on Earth, containing roughly 18 percent of the world's supply. We depend on a healthy basin for clean air and drinking water, personal health, employment, and leisure. The basin is under tremendous and growing environmental stress, due to increasing population, urbanization, industrial and agricultural activity, and recreational demands.

25. My report assesses the federal government's recent management of a wide range of environmental matters, including industrial and municipal pollution, contaminated sediments, drinking water, fish habitat management, invasive aquatic species, soil erosion, manure management, wetlands, species at risk, federal ecosystem programs, and more.

26. The federal government has played a key role in achieving many improvements in the basin over the past 30 years. But I am concerned about the loss of momentum and the implications it has for the future. Our audit revealed that many of the federal government's priorities and commitments for the basin are general and vague. The results it hopes to achieve are difficult to measure. We found that funding to deal with many issues in the basin has declined, is unstable, and is insufficient to achieve the objectives the federal government has set. Many of its key commitments, both domestic

and international, have not yet been met; many key initiatives have not been completed; and departments are spreading their efforts thin. Federal science activity in the basin has been weakened, resulting in major gaps in the scientific knowledge needed to understand and manage threats to the basin. And the information that is available to Parliament and the public does not afford a clear understanding of the progress the federal government may be making.

27. Today's science assesses the overall condition of the lakes and river as "mixed" or "mixed deteriorating." Environmental pressures in the basin are expected to increase in the future. The progress that has been achieved to date could be at risk. The leadership, innovation, science, and diligence that served the basin in the past have been diminished. The basin is a legacy worth protecting, and yet there is a sense of complacency, not urgency; resignation, not inspiration.

28. In addition to over 40 specific recommendations to departments, the chapter includes 11 higher-level matters where the federal government can do better. My report urges the government to focus on the crucial and distinct role it can play in securing a sustainable future for the basin—along with concerted action by other levels of government and other organizations.

Managing for sustainable development

29. Any enterprise—whether a family, a business, or a government—can either take a systematic approach to getting results that matter or leave results to chance. Four chapters on managing for sustainable development paint a picture of the measures the government is taking to manage its environmental and sustainable development agenda systematically. As we have found in the past two years, the level of performance is not consistent across departments. About half of the departments do not have adequate sustainable development management systems in place, while 75 percent show weak reporting practices. Major departments have not yet demonstrated a capacity to manage or mitigate environmental risks systematically or to capitalize on opportunities to operate in a more sustainable way.

30. The risks to Canadians and their environment are greater and more complex than ever. The success of the government's sustainable development agenda depends on having meaningful commitments and the capacity to meet them. Federal departments cannot leave it to chance to achieve their goals.

31. The lack of meaningful reporting to Parliament on results in protecting the environment restricts the ability of parliamentarians to exercise their oversight responsibility. It is thus difficult for Canadians to know whether the government is on a sustainable path. As Canada prepares for Earth Summit 2002, which will mark the 10th anniversary of the Rio Summit, I ask myself about the path it has taken up to now, given the review of departments' sustainable development management systems that my report describes. Is there reason to be proud of the results achieved in the last decade?

Climate change

32. The federal government considers greenhouse gas emissions and climate change to be among the greatest environmental challenges ever. Action now, it says, is essential.
33. Since our 1998 audit, the government has taken some important actions. However, it is far from taking a series of measures to reach its reduction targets. It is thus too early to say how its efforts will turn out. By its own reckoning, the federal government has a great deal more to do to address climate change. Meanwhile, the continuing rise in Canada's greenhouse gas emissions places the country on a path that is far from sustainable.
34. Canada has committed to reduce its emissions of certain greenhouse gases to six percent below 1990 levels in the period 2008 to 2012 (Canada's Kyoto target). However, levels in 1999 were 15 percent above 1990 levels. The federal government has estimated that Canada will need to reduce its emissions by 25 percent to meet its Kyoto target by 2010.
35. As evidenced by the continued upward trend in Canada's emissions, the government has not succeeded in transforming its promises into results. The trend in these emissions must be reversed: the consensus of international scientists is that emissions must fall by more than half in this century if we are to avoid dangerous interference in our climate.
36. The greenhouse gases we emit today will affect many generations to come. Given the important health, economic, environmental, and social benefits of taking action, I believe Canada cannot afford to let its efforts fall by the wayside.

Listening to Canadians: The environmental petitions process

37. As part of my mandate under the 1995 amendments to the *Auditor General Act*, I am responsible for handling environmental petitions on behalf of the Auditor General. The process is a formal means for Canadians to bring their concerns about environmental issues to the attention of federal ministers and obtain a response to their questions. Citizen participation in environmental issues and better access to environmental information are fundamental to sustainable development. It is my job to co-ordinate the petitions process, monitor responses, and make sure that the questions that are asked and the issues that are raised are addressed by federal ministers and their departments. I am committed to forging strong links with Canadians by listening to the concerns presented in the petitions we receive. Following a review of the Office's petition mandate, I have concluded that we can do more to ensure that the environmental petitions process better serves Canadians. Making the process even more accessible and understandable to Canadians is one of my key priorities. Chapter 7 of this report, as well as other initiatives such as the new "petitions corner" on our Web site (www.oag-bvg.gc.ca/environment), should move us further in that direction.

What's next?

38. **2002 Report.** I have already noted some areas of personal concern, some questions that I plan to address over the coming years. More specifically, in my 2002 Report to the House of Commons, coinciding with the 10th anniversary of Rio, we plan to take stock of federal progress in key areas such as toxic substances, contaminated sites, and waste management. The progress made by the federal government on some of the issues slated for Earth Summit 2002 will be the central theme of my next report.

39. **2003 and beyond.** The basic question we will ask is, "What can we audit that will make the biggest difference to Canadians?" Subjects for eventual audit could include environmental health, the relationship between commerce and the environment, natural resources as precious capital we must preserve, and the government's capacity to act as a good steward and manage its programs with due regard to the environment and sustainable development. We will examine sustainable development strategies from different angles, in particular the concrete measures they have produced, the progress achieved, and the relevance of this tool itself.

Sustainable development is the responsibility of all Canadians

40. **Improved communication with Canadians.** Finally, I want to raise the profile of our work and increase its impact. I want to speak with Canadians about the results of our audits of environmental and sustainable development issues. I want to explain what these findings mean to their health, the health of their environment, and their general well-being. I believe it is critical that our reports be viewed not as the end of a process but as a catalyst for action. I hope that parliamentarians, non-government organizations (including the private sector), and the Canadian public will see our report as a starting point for ensuring that the federal government and every one of us move toward sustainability.

41. Almost a generation has passed since the urgent call to action in *Our Common Future*. I do not think we can afford to wait another generation for the Government of Canada, which plays the primary role, to make the profound changes called for in that report.

Appendix

Auditor General Act – Excerpts

An Act respecting the Office of the Auditor General of Canada and sustainable development monitoring and reporting

INTERPRETATION

Definitions	2. In this Act,
"appropriate Minister"	"appropriate Minister" has the meaning assigned by section 2 of the <i>Financial Administration Act</i> ;
"category I department"	"category I department" means <ol style="list-style-type: none"> any department named in Schedule I to the <i>Financial Administration Act</i>, any department in respect of which a direction has been made under subsection 24(3), and any department, as defined in the <i>Financial Administration Act</i>, set out in the schedule;
"Commissioner"	"Commissioner" means the Commissioner of the Environment and Sustainable Development appointed under subsection 15.1(1);
"sustainable development"	"sustainable development" means development that meets the needs of the present without compromising the ability of future generations to meet their own needs;
"sustainable development strategy"	"sustainable development strategy", with respect to a category I department, means the department's objectives, and plans of action, to further sustainable development.

DUTIES

Examination	5. The Auditor General is the auditor of the accounts of Canada, including those relating to the Consolidated Revenue Fund and as such shall make such examinations and inquiries as he considers necessary to enable him to report as required by this Act.
Idem	6. The Auditor General shall examine the several financial statements required by section 64 of the <i>Financial Administration Act</i> to be included in the Public Accounts, and any other statement that the President of the Treasury Board or the Minister of Finance may present for audit and shall express his opinion as to whether they present fairly information in accordance with stated accounting policies of the federal government and on a basis consistent with that of the preceding year together with any reservations he may have.
Annual and additional reports to the House of Commons	7. (1) The Auditor General shall report annually to the House of Commons and may make, in addition to any special report made under subsection 8(1) or 19(2) and the Commissioner's report under subsection 23(2), not more than three additional reports in any year to the House of Commons

- (a) on the work of his office; and,
- (b) on whether, in carrying on the work of his office, he received all the information and explanations he required.

Idem (2) Each report of the Auditor General under subsection (1) shall call attention to any thing that he considers to be of significance and of a nature that should be brought to the attention of the House of Commons, including any cases in which he has observed that

- (a) accounts have not been faithfully and properly maintained or public money has not been fully accounted for or paid, where so required by law, into the Consolidated Revenue Fund;
- (b) essential records have not been maintained or the rules and procedures applied have been insufficient to safeguard and control public property, to secure an effective check on the assessment, collection and proper allocation of the revenue and to ensure that expenditures have been made only as authorized;
- (c) money has been expended other than for purposes for which it was appropriated by Parliament;
- (d) money has been expended without due regard to economy or efficiency;
- (e) satisfactory procedures have not been established to measure and report the effectiveness of programs, where such procedures could appropriately and reasonably be implemented; or
- (f) money has been expended without due regard to the environmental effects of those expenditures in the context of sustainable development.

STAFF OF THE AUDITOR GENERAL

Appointment of Commissioner 15.1 (1) The Auditor General shall, in accordance with the *Public Service Employment Act*, appoint a senior officer to be called the Commissioner of the Environment and Sustainable Development who shall report directly to the Auditor General.

Commissioner's duties (2) The Commissioner shall assist the Auditor General in performing the duties of the Auditor General set out in this Act that relate to the environment and sustainable development.

SUSTAINABLE DEVELOPMENT

Purpose 21.1 The purpose of the Commissioner is to provide sustainable development monitoring and reporting on the progress of category I departments towards sustainable development, which is a continually evolving concept based on the integration of social, economic and environmental concerns, and which may be achieved by, among other things,

- (a) the integration of the environment and the economy;
- (b) protecting the health of Canadians;
- (c) protecting ecosystems;
- (d) meeting international obligations;

- (e) promoting equity;
- (f) an integrated approach to planning and making decisions that takes into account the environmental and natural resource costs of different economic options and the economic costs of different environmental and natural resource options;
- (g) preventing pollution; and
- (h) respect for nature and the needs of future generations.

Petitions received	22. (1) Where the Auditor General receives a petition in writing from a resident of Canada about an environmental matter in the context of sustainable development that is the responsibility of a category I department, the Auditor General shall make a record of the petition and forward the petition within fifteen days after the day on which it is received to the appropriate Minister for the department.
Acknowledgement to be sent	(2) Within fifteen days after the day on which the Minister receives the petition from the Auditor General, the Minister shall send to the person who made the petition an acknowledgement of receipt of the petition and shall send a copy of the acknowledgement to the Auditor General.
Minister to respond	(3) The Minister shall consider the petition and send to the person who made it a reply that responds to it, and shall send a copy of the reply to the Auditor General, within <ul style="list-style-type: none"> (a) one hundred and twenty days after the day on which the Minister receives the petition from the Auditor General; or (b) any longer time, where the Minister personally, within those one hundred and twenty days, notifies the person who made the petition that it is not possible to reply within those one hundred and twenty days and sends a copy of that notification to the Auditor General.
Multiple petitioners	(4) Where the petition is from more than one person, it is sufficient for the Minister to send the acknowledgement and reply, and the notification, if any, to one or more of the petitioners rather than to all of them.
Duty to monitor	23. (1) The Commissioner shall make any examinations and inquiries that the Commissioner considers necessary in order to monitor <ul style="list-style-type: none"> (a) the extent to which category I departments have met the objectives, and implemented the plans, set out in their sustainable development strategies laid before the House of Commons under section 24; and (b) the replies by Ministers required by subsection 22(3).
Commissioner's report	(2) The Commissioner shall, on behalf of the Auditor General, report annually to the House of Commons concerning anything that the Commissioner considers should be brought to the attention of that House in relation to environmental and other aspects of sustainable development, including <ul style="list-style-type: none"> (a) the extent to which category I departments have met the objectives, and implemented the plans, set out in their sustainable development strategies laid before that House under section 24;

(b) the number of petitions recorded as required by subsection 22(1), the subject-matter of the petitions and their status; and

(c) the exercising of the authority of the Governor in Council under any of subsections 24(3) to (5).

Submission and tabling of report (3) The report required by subsection (2) shall be submitted to the Speaker of the House of Commons and shall be laid before that House by the Speaker on any of the next fifteen days on which that House is sitting after the Speaker receives it.

Strategies to be tabled 24. (1) The appropriate Minister for each category I department shall cause the department to prepare a sustainable development strategy for the department and shall cause the strategy to be laid before the House of Commons

(a) within two years after this subsection comes into force; or

(b) in the case of a department that becomes a category I department on a day after this subsection comes into force, before the earlier of the second anniversary of that day and a day fixed by the Governor in Council pursuant to subsection (4).

Updated strategies to be tabled (2) The appropriate Minister for the category I department shall cause the department's sustainable development strategy to be updated at least every three years and shall cause each updated strategy to be laid before the House of Commons on any of the next fifteen days on which that House is sitting after the strategy is updated.

Governor in Council direction (3) The Governor in Council may, on that recommendation of the appropriate Minister for a department not named in Schedule I to the *Financial Administration Act*, direct that the requirements of subsections (1) and (2) apply in respect of the department.

Date fixed by Governor in Council (4) On the recommendation of the appropriate Minister for a department that becomes a category I department after this subsection comes into force, the Governor in Council may, for the purpose of subsection (1), fix the day before which the sustainable development strategy of the department shall be laid before the House of Commons.

Regulations (5) The Governor in Council may, on the recommendation of the Minister of the Environment, make regulations prescribing the form in which sustainable development strategies are to be prepared and the information required to be contained in them.



Main Points

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A Legacy Worth Protecting: Charting a Sustainable Course in the Great Lakes and St. Lawrence River Basin

Chapter 1 Main Points

1.1 We prepared this chapter to answer three questions:

- What is the state of the Great Lakes and St. Lawrence River basin?
- What role does the federal government play in protecting and preserving this key ecosystem, and how is it performing in that role?
- How can the federal government do better and advance the sustainable development of the basin for generations to come?

1.2 The environmental health of the Great Lakes and St. Lawrence River basin reached a crisis point in the 1970s; it has improved dramatically since then. However, this past year, scientists studying the waters in the basin concluded that the state of the St. Lawrence River and lakes Superior, Michigan, Huron, and Ontario and is “mixed.” Lake Erie is considered “mixed deteriorating.” While drinking water was rated “good” and fish consumption advisories and swimming advisories “mixed improving,” many indicators raise concerns about the state of the basin.

1.3 The federal government has played a key role in achieving many improvements in the basin in the past. It has helped to build an elaborate array of important institutions, laws, and programs. Past experience offers evidence of the ability to resolve crises as they appear. But we are concerned about the loss of momentum in recent years and the implications this has for the future.

1.4 Our audit revealed that many of the federal government’s priorities and commitments for the basin are general and vague. The results it hopes to achieve are difficult to measure. We found that funding to deal with many issues in the basin is unstable, declining, and insufficient to meet the government’s objectives. Many key commitments have not been met; many key initiatives have not been completed; and departments are spreading their efforts thin. Federal science activity in the basin has been weakened, resulting in major gaps in the scientific knowledge needed to understand and manage threats to the basin. And the information that is available to Parliament and the public does not afford a clear understanding of the progress the federal government may be making.

1.5 In addition to over 40 specific recommendations to departments, this chapter presents 11 higher-level things that the federal government can do better.

Background and other observations

1.6 Sixteen million Canadians depend on the natural resources of the Great Lakes and St. Lawrence River basin for their livelihoods or for the quality of their lives. That number is expected to increase 20 percent within a generation. The basin is subjected to considerable stress, including industrial, municipal, and agricultural pollution; the effects of invasive species of plants and fish; toxic contaminants; loss of biodiversity; climate change; and endocrine-disrupting chemicals, among others.

1.7 While achieving sustainability in the basin is not up to the federal government alone—actions are needed by many other governments and organizations—it has a crucial and distinct role to play.

1.8 Water. The federal government has been active on water issues in the basin for several decades, with some positive results. Ongoing federal commitment and action to ensure that industry reduces its contaminant discharges has helped to improve water quality throughout the basin, as has financial support to treat municipal effluents. However, recent trends show that some aspects of water quality may be deteriorating.

1.9 We are particularly concerned by the following:

- Of the 17 areas of concern identified in Canada in 1985, 16 are still on the list. It is not clear how or when the federal government plans to restore the remaining areas.
- Health Canada has played a key role in the development of drinking water quality guidelines to protect the health of Canadians. But it does not know the quality of drinking water or whether the provinces are applying the guidelines.
- Environment Canada is meeting its basic obligations to monitor water for the presence of contaminants listed in the Great Lakes Water Quality Agreement. However, its understanding of changes in water quality is based on a limited number of substances, while many are not monitored at all.
- Departments are acting without having clearly articulated what they want to achieve. And they often define their role as supporting the priorities of others rather than their own.

1.10 The government does not have some of the basic information it needs to develop priorities and action plans. Consequently, it is involved in many remedial actions with no way to determine which are the most important and what they will contribute.

1.11 Agriculture. Farming has a substantial impact on the environment. It causes soil erosion, water pollution, and loss of biological diversity. Farming practices in the basin are having effects that cannot be sustained.

1.12 The federal government is attempting to manage the environmental effects of agriculture in the basin. It is confronting the problems of soil erosion and the contamination of water and soil by manure and fertilizer. It has laid part of a foundation for effective management of these and other

environmental impacts. It has identified environmental sustainability as a priority.

1.13 But the federal government has left some critical gaps. It has not sorted out who is going to do what. Information is out-of-date. Some action plans have not been developed. Results of key programs are not measured. Effective management is needed to reverse these trends.

1.14 Livestock operations in Ontario and Quebec generate enough manure to equal the sewage from over 100 million people. And the problem of how to manage it safely is getting worse. The misuse of manure and fertilizer on farmland has damaged the ecosystem of the basin. For example, roughly 70 percent of Ontario and Quebec farmland had much higher nitrogen levels in 1996 than in 1981—and much of it above levels that cause groundwater and surface water contamination. It is time for the government to rethink its approach.

1.15 More than 40 percent of Ontario's cropland is at risk of eroding at an unsustainable rate. Federal and provincial efforts over the past decades have led to only a modest reduction in soil erosion.

1.16 Federal programs and policies are not working well together. Agriculture and Agri-Food Canada has not integrated its policies and programs in the basin effectively with those of its federal and provincial partners. In addition, the Department has failed to fully meet its commitments to evaluate the environmental consequences of its policies and programs such as income support and disaster assistance.

1.17 Species and spaces at risk. Over the last decade, the federal government's efforts to recover species at risk have had mixed results. Almost half of the endangered and threatened species in the basin that are under the federal government's jurisdiction do not have recovery plans. New federal initiatives are under way that should contribute significantly to the recovery of species at risk in Canada.

1.18 The federal government has participated in restoring and protecting wetlands. While these activities are encouraging, there is not enough information on the current status of wetlands to say whether it is improving or getting worse.

1.19 The environmental health of national wildlife areas and migratory bird sanctuaries—important biological assets in the basin—is at risk from a lack of human and financial resources needed to manage them effectively.

1.20 The federal government delivers stewardship programs—programs that encourage voluntary actions to conserve habitat—without a cohesive stewardship strategy. While the performance of individually funded stewardship projects is measured, there is no summary reporting of federal efforts. There is also limited reporting of habitat losses, making it difficult to determine the net benefit of stewardship projects and to know whether the state of habitat in the basin is getting better or worse.

1.21 Fisheries. Fisheries and Oceans has not clearly defined its role in the conservation and protection of freshwater fisheries in the basin. The Department has no formal vision of the aquatic ecosystem it wants to promote. It lacks sufficient scientific information to carry out its mandate effectively; does not have clear accountability relationships with the provinces; and does not report regularly to Parliament on actions it has taken and results achieved in the basin.

1.22 There is no federal policy, no recognized lead department, and no plan to co-ordinate federal action to counteract the environmental, economic, and social impacts of invasive aquatic species on the basin's ecosystem. Fisheries and Oceans has helped the Great Lakes Fishery Commission control the invasion of sea lamprey for the last 40 years. However, ballast water and sludge carried by commercial ships—major pathways for invasive species to enter the basin—are not being controlled adequately.

1.23 Fisheries and Oceans has not applied its fish habitat management policy fully and does not know whether the policy's objective is being achieved. It is in the process of strengthening its habitat management program in the basin, but the program is not designed to provide the same level of monitoring and enforcement in Quebec as in Ontario.

1.24 Ecosystem initiatives. St. Lawrence Vision 2000 has a good structure for managing issues that involve several departments and governments, and it generally follows good management practices. But program managers, Parliament, and the public have little information on the state of the environment of the St. Lawrence River to assess how the program has contributed to protecting the environment and human health—its overall goals.

1.25 Great Lakes 2000 was designed initially with clear roles and responsibilities and well-defined expected results. However, major budget cuts compromised the participation of departments and their capacity to meet commitments under the Canada–Ontario Agreement and the Great Lakes Water Quality Agreement. The federal government was not transparent about the consequences of budget cuts and did not report publicly on actual federal spending under Great Lakes 2000. For the next phase of the program—Great Lakes 2020—funding was approved for federal activities only in areas of concern, so it is still not clear whether the federal government can meet its commitments under the Great Lakes Water Quality Agreement.

1.26 The International Joint Commission. The federal government has not provided the International Joint Commission (IJC) with enough information to properly assess Canada's progress under the Great Lakes Water Quality Agreement. It has delayed answering the Commission's requests for information and responding to its recommendations. The federal government does no formal follow-up to ensure that it will complete the actions it identifies in its responses to the Commission's recommendations.

1.27 Over the years, federal officials have provided technical expertise to the IJC's boards and study teams. However, the loss of scientific and technical

capabilities as a result of budget cuts is putting that support at risk. Also, the government has delayed its share of funding for the Commission's reference studies.

In this chapter, we identify a number of areas where we believe the federal government can do a better job of managing for sustainability in the basin. We make a series of recommendations, directed to the departments of Agriculture and Agri-Food, Environment, Fisheries and Oceans, Foreign Affairs and International Trade, Health, and Natural Resources, and to the Parks Canada Agency.

Agriculture and Agri-Food Canada agrees with our recommendations to it. Its response identifies existing or planned activities that relate to the issues we address, although it is not clear whether they will address all aspects of the recommendations.

Environment Canada agrees with our recommendations to it. Its response indicates its commitment to take action. In several instances, the Department notes that its ability to implement such actions depends on the availability of resources.

Fisheries and Oceans agrees with our recommendations to it. Its response identifies existing and planned activities that relate to the issues we address, although it does not consistently provide a clear commitment to address all aspects of the recommendations.

The Department of Foreign Affairs and International Trade, Health Canada, Natural Resources Canada, and the Parks Canada Agency agree with our recommendations to them respectively and have indicated their commitment to take action.



Sustainable Development Management Systems

Chapter 2 Main Points

2.1 This chapter presents a mixed message. Some departments have shown examples of real progress in implementing management systems for sustainable development—Industry Canada, National Defence, Natural Resources Canada, and Transport Canada. On the other hand, some departments could not produce sufficient evidence to show that they had management systems for the commitments contained in their sustainable development strategies.

2.2 Eight of the sixteen departments audited this year showed evidence that they have most of the elements of a management system to implement the commitments in their sustainable development strategies. However, eight departments could not show us that they have management systems. We are concerned that the departments that could not show us a system may be at risk of not meeting their sustainable development commitments and may also slow the progress of the federal government toward sustainability.

2.3 Reflections on the past three years. Three years ago we expected that departments could develop and implement management systems to meet their sustainable commitments. Leading departments have demonstrated that it can be done. However, there are still far too many links missing in the chain. We are concerned that non-performing departments will drag other departments down. We are concerned because the issue is not compliance with a management system model but the ability to deliver on the government's promise to adopt a sustainable development agenda. Adopting a methodical approach to managing sustainable development is one test to measure whether the government is serious about sustainable development or whether it is treating it as a paper exercise. Only half of the departments we audited this year passed that test.

2.4 The largest enterprise in Canada does not have a co-ordinated approach. The largest enterprise in Canada—the federal government—does not have a common management approach, completed standards, a timetable, or oversight to guide and hold departments accountable for their sustainable development programs. There must be a Government of Canada perspective, which includes an agreed-upon timetable for implementation of a management system, if there are to be consistent management systems in all departments within a reasonable time frame.

Background and other observations

2.5 In 1997, 28 federal departments tabled their first sustainable development strategies in the House of Commons. The strategies contained the departments' action plans, including the objectives and targets that the departments and others would use as benchmarks for measuring progress.

2.6 In 1999 and 2000, we reported on the management practices that 12 departments were following to implement their sustainable development strategies. We have demonstrated in previous reports that a well-functioning management system is a strong indicator that intended results will be accomplished. As a benchmark of good practice, we used the International Organization for Standardization (ISO) 14001 standard for environmental management systems. This year, using the same benchmark, we assessed the management practices of the remaining 16 departments.

2.7 As noted in our 1999 and 2000 reports, our review of documentation provided by departments found that in most departments, much of the documented evidence provided to describe systems and processes had been prepared after the department was selected for review by the Commissioner of the Environment and Sustainable Development. We noted that many of the departments had undertaken significant efforts to describe elements of their environmental and sustainable development management systems, make enhancements to programs, and develop additional plans and initiatives. In some departments—Industry Canada, Parks Canada, Royal Canadian Mounted Police, Public Works and Government Services Canada, and Human Resources Development Canada—consultants largely undertook much of this work. These organizations must be careful to ensure that they retain in-house the knowledge developed by the consultants.

2.8 Our next audits will look at the performance of some departments in moving toward sustainable development. In those departments that presented evidence of well-functioning management systems, we will expect their management systems to be operating at all organizational levels and at all sites. In the departments with significant deficiencies, we will expect to see an active program to address these deficiencies, as well as progress toward their sustainable development commitments.

The Government of Canada recognizes that effective management processes are crucial for achieving results on the objectives outlined in departments' sustainable development strategies.

The Treasury Board Secretariat will assist departments and agencies by providing advice on establishing or strengthening appropriate management processes to support their activities. The Privy Council Office will ensure that senior managers recognize the priority that government has placed on sustainable development. Environment Canada will provide leadership and help to co-ordinate the efforts of departments across government to promote sustainable development. Each minister is accountable directly to Parliament for the department's performance against the objectives set out in the strategy.



Reporting on Sustainable Development

Is the System Working?

Chapter 3 Main Points

3.1 This is the Commissioner's third annual report on federal departments' reporting of progress toward sustainable development. For the period ending 31 March 2000, the 28 departments and agencies that we monitor reported that they had met an average of about 35 percent of the commitments in their sustainable development strategies. This represents progress from the 20 percent reported in 1999, and 11 percent in 1998.

3.2 The Treasury Board Secretariat annually publishes *Guidelines for the Preparation of Departmental Performance Reports*; this document provides guidance on the structure and contents of the annual performance reports, including reporting on sustainable development strategies. The Secretariat encourages departments to follow the Guidelines carefully and to continue improving the quality of their performance reporting. While we found that more departments were following the Guidelines' requirements for reporting on sustainable development strategies than in previous years, few follow them in their entirety. This inhibits Parliament's ability to hold departments to account for their progress in meeting the objectives and implementing the plans set out in their sustainable development strategies.

3.3 In our view, the Privy Council Office needs to strengthen the present governance structure by ensuring that departments are aware of the priority that the government has placed on sustainable development and that they understand the role they are expected to play, including their obligation to report progress.

Background and other observations

3.4 In 1995, the *Auditor General Act* was amended to create the position of Commissioner of the Environment and Sustainable Development. One duty of the Commissioner is to monitor and report on the progress of departments toward sustainable development. To this end, departments are required to prepare sustainable development strategies and table them in the House of Commons. The first such strategies were tabled by December 1997.

3.5 The Act requires ministers to update their sustainable development strategies at least every three years. The second strategies were tabled in the House of Commons in February 2001.

3.6 This chapter reflects our experience of monitoring the first round of sustainable development strategies. Our observations and recommendations focus on areas that require further improvement in reporting progress on the second round of strategies.

The Privy Council Office agrees with the Commissioner of the Environment and Sustainable Development that meaningful performance reports, including the monitoring of progress toward sustainable development, play an important role in the government's accountability to Parliament. The Privy Council Office, through its participation on interdepartmental committees on sustainable development, will emphasize this importance and encourage departments to improve, where necessary, on their reporting.

The Privy Council Office and the Treasury Board Secretariat will encourage departments and agencies to continue to explore innovative approaches for enhancing intra- and interdepartmental information sharing on sustainable development.



Assessing the First Sustainable Development Strategies

Chapter 4 Main Points

4.1 The six departments and agencies we audited all assessed their first sustainable development strategies, although we noted considerable differences in the process followed. We determined that there were two key ingredients to a good assessment—starting early and following a systematic process. In the future, we expect that an assessment of each strategy will be built into the sustainable development management system.

4.2 Natural Resources Canada did the most extensive assessment of its first sustainable development strategy. Senior management lent its support, involvement, and commitment to that process. The Department was the closest to having the strong management review and checking and corrective action components required in a sustainable development management system.

4.3 Departments and agencies identified two main problem areas in their assessments of the first sustainable development strategies. First, they found that the strategies were too broad, with too many goals and objectives and not enough measurable targets. Thus, they needed to set some priorities and develop more specific targets. Second, the departments and agencies recognized the need to develop or improve performance indicators to measure progress toward their sustainable development goals and objectives. We agree with these assessment results and will be auditing these areas in the future.

Background and other observations

4.4 The first sustainable development strategies were tabled in the House of Commons by December 1997. Since then, departments and agencies have focussed on implementing their strategies and reporting their progress.

4.5 In December 1999, we published the document *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies*. This document outlined how departments could improve their next strategies and asked departments to do three things: assess their first strategies, strengthen the planning of their strategies, and accelerate the development of their management systems. This audit focussed on the first thing—assessing their first strategies.

4.6 We reviewed the assessments of the first sustainable development strategies in three departments—Health Canada, Natural Resources Canada, and Industry Canada—and in three agencies included in the Industry

portfolio—Atlantic Canada Opportunities Agency, Canada Economic Development for Quebec Regions, and Western Economic Diversification Canada. These organizations were chosen for two reasons. First, they represent a cross-section of policy and program mandates. Second, they provide a sample of organizations that are important to the success of the sustainable development effort government-wide.

4.7 Certain management practices are essential to continual improvement, such as internal audit, self-assessment, and the assessment of changing circumstances. We identified some good examples of these management practices and expect departments to expand their use of these tools.



Integrating the Social Dimension

A Critical Milestone

Chapter 5 Main Points

5.1 Sustainable development not only involves protecting the environment; it also involves improving and maintaining the quality of life for people in Canada and in other parts of the world, without compromising the ability of future generations to meet their own needs.

5.2 Sustainable development is a concept based on the integration of economic, environmental, and social concerns. Environmental protection responds to the single goal of trying to preserve environmental quality. Sustainable development, however, is more complex. It recognizes that social and cultural factors play an important role in sustainable development, in addition to economic and environmental factors. As well, it seeks to ensure quality of life over the long term.

5.3 Our study noted five areas of consensus:

- First, while there is debate about how to define the social dimension of sustainable development, the focus should be on the interconnectedness of the three dimensions of sustainable development—economic, environmental, and social.
- Second, integrated decision making is essential. Decision makers need to consider the three dimensions of sustainable development when they make policy and enact law.
- Third, social learning and behavioural change are fundamental to achieving sustainability.
- Fourth, addressing the social dimension of sustainable development is a critical part of achieving sustainability, and incorporating the social dimension into the next round of sustainable development strategies is a priority.
- Fifth, developing measures and indicators for the social dimension of sustainable development is a challenge that needs to be addressed in the near future.

In our future work, we will use these areas of consensus as starting points for audits that include the social dimension of sustainable development.

Background

5.4 This study outlines current thinking about the social dimension of sustainable development and identifies areas of consensus. We conducted a review of the literature and two consultative workshops—one with consultants and academics and one with federal government departments. To

provide context, we also reviewed the first and second generations of sustainable development strategies and relevant international and domestic commitments to see if the social dimension had been addressed. In addition, we reviewed some emerging national and international indicators and performance measures for the social dimension of sustainable development.



Climate Change and Energy Efficiency

A Progress Report

Chapter 6 Main Points

Climate change

6.1 Canada has committed to reduce its emissions of certain greenhouse gases to six percent below 1990 levels in the period 2008 to 2012 (Canada's Kyoto target). However, from 1995 to 1999, Canada's greenhouse gas emissions increased from 9 to 15 percent above 1990 levels. Therefore, the gap related to achieving Canada's Kyoto target widened while the time remaining to achieve it narrowed.

6.2 Since our 1998 audit, the federal government has made some important progress in rethinking its implementation strategy on climate change, and in changing the management structure for dealing with climate change by establishing a national climate change process. It has increased funding to address climate change and has launched the Government of Canada Action Plan 2000 on Climate Change, which is intended to take Canada a third of the way toward its Kyoto target. It is still too early to tell whether changes in the implementation strategy on climate change will reverse the upward trend of Canada's greenhouse gas emissions.

6.3 As part of Action Plan 2000, a new Federal House-in-Order Strategy has been announced. While 11 key departments and agencies have been assigned reduction targets for greenhouse gas emissions, all other federal entities will be invited to participate voluntarily. To demonstrate environmental leadership to the rest of Canada, the federal government will need to ensure adequate participation by federal entities.

6.4 From the recent sustainable development strategies and other documents tabled in Parliament, it remains very difficult to get a clear picture of the federal government's response to climate change. We continue to believe that Parliament's ability to provide effective oversight is hampered by the continued lack of consolidated summary-level reporting to Parliament on both the federal government's and Canada's response to climate change.

6.5 Despite the progress made to date, the federal government still needs to do a great deal of work to engage partners to take action on climate change. Given the important health, economic, environmental, and social benefits of taking action, we believe Canada cannot afford to let its efforts to date fall by the wayside.

Background and other observations

6.6 International scientists claim that greenhouse gas emissions will have to be cut by more than half by the end of the century to avoid some of the more severe impacts of climate change. In Canada, these impacts could include adverse effects on Canada's North, agriculture and agri-food, forestry, and fisheries, as well as increases in floods, droughts, forest fires, and severe storms.

6.7 In December 1997, Canada and 160 other countries adopted the Kyoto Protocol that established Canada's Kyoto target. Canada signed the Kyoto Protocol in April 1998. Like most other developed countries, it has not yet ratified the Protocol. Decisions on some key mechanisms or tools and other issues of the Protocol have not been finalized and are the subject of ongoing international negotiations. During the interim between signature and ratification, countries are obliged under international law to refrain from doing anything to frustrate the intent of the Protocol. Once this Protocol enters into force, it will legally bind countries who have ratified it to meet their greenhouse gas emission commitments.

Environment Canada and Natural Resources Canada responded to our recommendation and agreed to annually review the participation of federal entities in the Leadership Challenge component of the Federal House-in-Order Strategy. In their joint comment on our climate change follow-up work, Environment Canada and Natural Resources Canada outlined some of the government's recent accomplishments and acknowledged that there are a number of important matters that remain unresolved.

Energy efficiency

6.8 Natural Resources Canada (NRCan) has made satisfactory progress in addressing our 1997 recommendations associated with its energy efficiency initiatives. Since then, NRCan has provided greater clarity in the performance expectations for these initiatives, made considerable progress in measuring and assessing their performance, and significantly increased its efforts to link changes in energy use to changes in greenhouse gas emissions. It has also provided improved performance information in its reporting to Parliament on these initiatives.

Background and other observations

6.9 The production and consumption of fossil fuels such as oil, natural gas, and coal (the main sources of energy in Canada) cause most of Canada's greenhouse gas emissions. Using energy more efficiently will generally help reduce these emissions.

6.10 In our 1997 audit of energy efficiency, we concluded that NRCan's performance information, on both expectations and achievements, was not sufficient to determine the overall success of its energy efficiency initiatives in terms of the contribution they were making to Canada's climate change

commitments. We also identified opportunities to enhance the transparency of the energy efficiency initiatives and departmental accountability by better reporting to Parliament on expectations and achievements.



Connecting With Canadians

The Environmental Petitions Process

Chapter 7 Main Points

7.1 The environmental petitions process under the *Auditor General Act* provides a formal means for Canadians to bring their concerns about environmental issues to the attention of federal ministers and departments and obtain a response to their concerns. For example, through the process, citizens and organizations can ask federal ministers to explain federal policy, investigate an environmental problem, or examine their enforcement of environmental legislation.

7.2 The Commissioner of the Environment and Sustainable Development is responsible for handling environmental petitions on behalf of the Auditor General of Canada. The Commissioner co-ordinates the process, monitors responses, and makes sure that the questions that Canadians pose and the issues that they raise are addressed by federal ministers and their departments.

7.3 Although the environmental petitions process was established back in December 1995, it is virtually unknown to Canadians. One of the key priorities for the Commissioner is to make the public more aware of the process and provide guidance on preparing and submitting environmental petitions. We are taking steps to try to ensure that the petitions process works as effectively as possible, such as following up on departmental commitments outlined in petition replies and considering the subject matter of petitions for future audits or studies.

7.4 If you have concerns about an environmental or sustainable development issue and would like some answers, you should consider using the environmental petitions process under the *Auditor General Act*.

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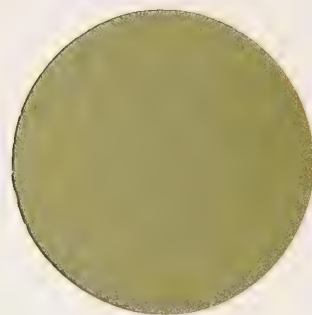


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Great Lakes and St. Lawrence River Basin

Chapter 1

**A Legacy Worth Protecting: Charting a Sustainable
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2001



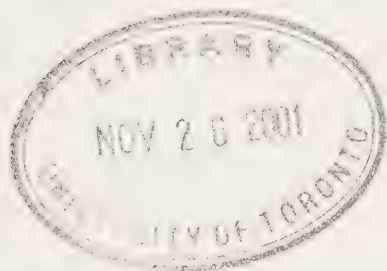
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Great Lakes and St. Lawrence River Basin

Chapter 1

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The 2001 Report of the Commissioner of the Environment and Sustainable Development comprises seven chapters, The Commissioner's Perspective—2001, and a Foreword. The main table of contents is found at the end of this publication.



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Chapter

1

Great Lakes
and St. Lawrence River Basin

A Legacy Worth Protecting: Charting a
Sustainable Course in the Great Lakes
and St. Lawrence River Basin

The audit work reported in this chapter was conducted in accordance with the legislative mandate, policies, and practices of the Office of the Auditor General of Canada. These policies and practices embrace the standards recommended by the Canadian Institute of Chartered Accountants.

COMMISSIONER'S FOREWORD

The fate of the Great Lakes and St. Lawrence River basin is a fascinating and compelling story. Growing up near the shores of the St. Lawrence, I have long felt a strong personal connection to the river. For me and 16 million other Canadians, the basin is our home and our life-support system.

And yet, many of the things we do—from making cars, and growing crops to shipping goods, harvesting timber, building housing subdivisions, and flushing toilets—can cause damage to the basin. If undertaken thoughtlessly, our actions can have damaging—and predictable—effects on the environment that can threaten our personal health and way of life. This is not just theory—it is happening: Today's science describes a Great Lakes and St. Lawrence River basin under growing pressure, changing in fundamental ways, and deteriorating in many respects before our eyes.

We audited the federal government to see what it is doing—in concert with the provinces, the United States, and many other partners—about the environmental threats facing the basin. This chapter, *A Legacy Worth Protecting: Charting a Sustainable Course in the Great Lakes and St. Lawrence River Basin*, looks at the federal government's ongoing efforts to achieve sustainability in the basin.

We found, on the plus side, that efforts by federal officials and scientists over past decades contributed significantly to many environmental improvements and innovations in the basin. The government has so far navigated successfully through still waters and some swift currents—the environmental threats and pressures of population growth; urban development; and changes in technology, infrastructure, industry, and agriculture. Past successes teach us crucial lessons, including the need for strong science, good planning, robust partnerships, innovative thinking, and constant vigilance.

Unlike the past, though, ahead the trip is uncharted and we are quickly approaching whitewater rapids. The future of the basin is one of increasing pressures, threats, and complexities. And so, I am troubled by the global messages emerging from our work.

Important matters are adrift. Declining and unstable funding to federal departments has significantly impaired their ability to achieve their environmental objectives and meet Canada's international commitments. Some of the government's stated priorities and policies have not been resourced adequately, and so exist only on paper.

No apparent plan for the next generation of efforts. Federal actions on many of the problems in the basin have been short-term and, at times, unconnected. The actions have been necessary but, with no long-term

strategy, it is hard to know where they are taking us. The federal government is uniquely positioned to take a basin-wide, long-term perspective, but so far it has not.

Scientific research, monitoring, and information systems are limited.

The government is missing some basic information it needs to measure the health of our environment, to understand existing and emerging pressures, and to gauge the effectiveness of the actions it takes. The quality of existing data sets is deteriorating; the federal capacity is going in the wrong direction.

A changing, waning, unclear federal role. The federal government has changed its role in fundamental ways. In some cases, it is retreating from important stated positions. Its commitments and priorities show a disquieting lack of transparency and clarity.

The basin our children will inherit will be much different from today's. Part of the challenge of sustainable development is to ensure that their future is secure. I look to the federal government, as the leader of this trip, to properly map the approaching rapids and obstacles (through robust science and monitoring), chart the destination and course (in vision, policies, and plans), obtain the right equipment (policy instruments and integrated programs) and, working with partners, mobilize the expertise and teamwork it needs.

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A Legacy Worth Protecting: Charting a Sustainable Course in the Great Lakes and St. Lawrence River Basin

Main Points

1. We prepared this chapter to answer three questions:
 - What is the state of the Great Lakes and St. Lawrence River basin?
 - What role does the federal government play in protecting and preserving this key ecosystem, and how is it performing in that role?
 - How can the federal government do better and advance the sustainable development of the basin for generations to come?
2. The environmental health of the Great Lakes and St. Lawrence River basin reached a crisis point in the 1970s; it has improved dramatically since then. However, this past year, scientists studying the waters in the basin concluded that the state of the St. Lawrence River and lakes Superior, Michigan, Huron, and Ontario and is “mixed.” Lake Erie is considered “mixed deteriorating.” While drinking water was rated “good” and fish consumption advisories and swimming advisories “mixed improving,” many indicators raise concerns about the state of the basin.
3. The federal government has played a key role in achieving many improvements in the basin in the past. It has helped to build an elaborate array of important institutions, laws, and programs. Past experience offers evidence of the ability to resolve crises as they appear. But we are concerned about the loss of momentum in recent years and the implications this has for the future.
4. Our audit revealed that many of the federal government’s priorities and commitments for the basin are general and vague. The results it hopes to achieve are difficult to measure. We found that funding to deal with many issues in the basin is unstable, declining, and insufficient to meet the government’s objectives. Many key commitments have not been met; many key initiatives have not been completed; and departments are spreading their efforts thin. Federal science activity in the basin has been weakened, resulting in major gaps in the scientific knowledge needed to understand and manage threats to the basin. And the information that is available to Parliament and the public does not afford a clear understanding of the progress the federal government may be making.
5. In addition to over 40 specific recommendations to departments, this chapter presents 11 higher-level things that the federal government can do better.

Background and other observations

6. Sixteen million Canadians depend on the natural resources of the Great Lakes and St. Lawrence River basin for their livelihoods or for the quality of their lives. That number is expected to increase 20 percent within a generation. The basin is subjected to considerable stress, including industrial, municipal, and agricultural pollution; the effects of invasive species of plants and fish; toxic contaminants; loss of biodiversity; climate change; and endocrine-disrupting chemicals, among others.

7. While achieving sustainability in the basin is not up to the federal government alone—actions are needed by many other governments and organizations—it has a crucial and distinct role to play.

8. **Water.** The federal government has been active on water issues in the basin for several decades, with some positive results. Ongoing federal commitment and action to ensure that industry reduces its contaminant discharges has helped to improve water quality throughout the basin, as has financial support to treat municipal effluents. However, recent trends show that some aspects of water quality may be deteriorating.

9. We are particularly concerned by the following:

- Of the 17 areas of concern identified in Canada in 1985, 16 are still on the list. It is not clear how or when the federal government plans to restore the remaining areas.
- Health Canada has played a key role in the development of drinking water quality guidelines to protect the health of Canadians. But it does not know the quality of drinking water or whether the provinces are applying the guidelines.
- Environment Canada is meeting its basic obligations to monitor water for the presence of contaminants listed in the Great Lakes Water Quality Agreement. However, its understanding of changes in water quality is based on a limited number of substances, while many are not monitored at all.
- Departments are acting without having clearly articulated what they want to achieve. And they often define their role as supporting the priorities of others rather than their own.

10. The government does not have some of the basic information it needs to develop priorities and action plans. Consequently, it is involved in many remedial actions with no way to determine which are the most important and what they will contribute.

11. **Agriculture.** Farming has a substantial impact on the environment. It causes soil erosion, water pollution, and loss of biological diversity. Farming practices in the basin are having effects that cannot be sustained.

12. The federal government is attempting to manage the environmental effects of agriculture in the basin. It is confronting the problems of soil erosion and the contamination of water and soil by manure and fertilizer. It has laid part of a foundation for effective management of these and other

environmental impacts. It has identified environmental sustainability as a priority.

13. But the federal government has left some critical gaps. It has not sorted out who is going to do what. Information is out-of-date. Some action plans have not been developed. Results of key programs are not measured. Effective management is needed to reverse these trends.

14. Livestock operations in Ontario and Quebec generate enough manure to equal the sewage from over 100 million people. And the problem of how to manage it safely is getting worse. The misuse of manure and fertilizer on farmland has damaged the ecosystem of the basin. For example, roughly 70 percent of Ontario and Quebec farmland had much higher nitrogen levels in 1996 than in 1981—and much of it above levels that cause groundwater and surface water contamination. It is time for the government to rethink its approach.

15. More than 40 percent of Ontario's cropland is at risk of eroding at an unsustainable rate. Federal and provincial efforts over the past decades have led to only a modest reduction in soil erosion.

16. Federal programs and policies are not working well together. Agriculture and Agri-Food Canada has not integrated its policies and programs in the basin effectively with those of its federal and provincial partners. In addition, the Department has failed to fully meet its commitments to evaluate the environmental consequences of its policies and programs such as income support and disaster assistance.

17. **Species and spaces at risk.** Over the last decade, the federal government's efforts to recover species at risk have had mixed results. Almost half of the endangered and threatened species in the basin that are under the federal government's jurisdiction do not have recovery plans. New federal initiatives are under way that should contribute significantly to the recovery of species at risk in Canada.

18. The federal government has participated in restoring and protecting wetlands. While these activities are encouraging, there is not enough information on the current status of wetlands to say whether it is improving or getting worse.

19. The environmental health of national wildlife areas and migratory bird sanctuaries—important biological assets in the basin—is at risk from a lack of human and financial resources needed to manage them effectively.

20. The federal government delivers stewardship programs—programs that encourage voluntary actions to conserve habitat—without a cohesive stewardship strategy. While the performance of individually funded stewardship projects is measured, there is no summary reporting of federal efforts. There is also limited reporting of habitat losses, making it difficult to determine the net benefit of stewardship projects and to know whether the state of habitat in the basin is getting better or worse.

21. **Fisheries.** Fisheries and Oceans has not clearly defined its role in the conservation and protection of freshwater fisheries in the basin. The Department has no formal vision of the aquatic ecosystem it wants to promote. It lacks sufficient scientific information to carry out its mandate effectively; does not have clear accountability relationships with the provinces; and does not report regularly to Parliament on actions it has taken and results achieved in the basin.
22. There is no federal policy, no recognized lead department, and no plan to co-ordinate federal action to counteract the environmental, economic, and social impacts of invasive aquatic species on the basin's ecosystem. Fisheries and Oceans has helped the Great Lakes Fishery Commission control the invasion of sea lamprey for the last 40 years. However, ballast water and sludge carried by commercial ships—major pathways for invasive species to enter the basin—are not being controlled adequately.
23. Fisheries and Oceans has not applied its fish habitat management policy fully and does not know whether the policy's objective is being achieved. It is in the process of strengthening its habitat management program in the basin, but the program is not designed to provide the same level of monitoring and enforcement in Quebec as in Ontario.
24. **Ecosystem initiatives.** St. Lawrence Vision 2000 has a good structure for managing issues that involve several departments and governments, and it generally follows good management practices. But program managers, Parliament, and the public have little information on the state of the environment of the St. Lawrence River to assess how the program has contributed to protecting the environment and human health—its overall goals.
25. Great Lakes 2000 was designed initially with clear roles and responsibilities and well-defined expected results. However, major budget cuts compromised the participation of departments and their capacity to meet commitments under the Canada–Ontario Agreement and the Great Lakes Water Quality Agreement. The federal government was not transparent about the consequences of budget cuts and did not report publicly on actual federal spending under Great Lakes 2000. For the next phase of the program—Great Lakes 2020—funding was approved for federal activities only in areas of concern, so it is still not clear whether the federal government can meet its commitments under the Great Lakes Water Quality Agreement.
26. **The International Joint Commission.** The federal government has not provided the International Joint Commission (IJC) with enough information to properly assess Canada's progress under the Great Lakes Water Quality Agreement. It has delayed answering the Commission's requests for information and responding to its recommendations. The federal government does no formal follow-up to ensure that it will complete the actions it identifies in its responses to the Commission's recommendations.
27. Over the years, federal officials have provided technical expertise to the IJC's boards and study teams. However, the loss of scientific and technical

capabilities as a result of budget cuts is putting that support at risk. Also, the government has delayed its share of funding for the Commission's reference studies.

In this chapter, we identify a number of areas where we believe the federal government can do a better job of managing for sustainability in the basin. We make a series of recommendations, directed to the departments of Agriculture and Agri-Food, Environment, Fisheries and Oceans, Foreign Affairs and International Trade, Health, and Natural Resources, and to the Parks Canada Agency.

Agriculture and Agri-Food Canada agrees with our recommendations to it. Its response identifies existing or planned activities that relate to the issues we address, although it is not clear whether they will address all aspects of the recommendations.

Environment Canada agrees with our recommendations to it. Its response indicates its commitment to take action. In several instances, the Department notes that its ability to implement such actions depends on the availability of resources.

Fisheries and Oceans agrees with our recommendations to it. Its response identifies existing and planned activities that relate to the issues we address, although it does not consistently provide a clear commitment to address all aspects of the recommendations.

The Department of Foreign Affairs and International Trade, Health Canada, Natural Resources Canada, and the Parks Canada Agency agree with our recommendations to them respectively and have indicated their commitment to take action.

A LEGACY WORTH PROTECTING

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A LEGACY WORTH PROTECTING

Introduction to the Basin and Our Audit

A unique and threatened home

1. To 16 million Canadians, from Thunder Bay to Quebec City, Severn Sound to Trois-Rivières, the Great Lakes and St. Lawrence River basin is home. We depend on the basin's rich resources for clean air and drinking water, food and shelter, good health, employment, sport, and recreation. The basin is a natural wonder and the envy of the world, holding some 20 percent of the Earth's fresh water.
2. The basin is also a major economic force for Canada. Its lakes, rivers, and streams support the highest concentration of industry in the country. In 1998 the basin supplied \$11.8 billion of Canada's agricultural products, feeding not only Canadians but also people around the world.
3. And yet we, together with 25 million Americans who share the basin, subject its environment to a lot of stress: industrial, municipal, and agricultural pollution of water; invasive species of plants and fish; air pollution, acid rain, and smog; the loss of valuable species and areas of biodiversity; and climate change. The health of the basin's inhabitants is subject to bacterial, viral, and parasitic diseases; toxic contaminants; and endocrine-disrupting chemicals. And the social well-being of communities in the basin is affected by beach closings, limits on fish consumption, and drinking water advisories.

What our audit examined

4. As federal legislative auditors, we have a mandate to report to the House of Commons "matters of significance" that we note in the way the government manages environmental and sustainable development issues. With the importance of the basin and the concerns of Canadians in mind, we conducted this audit to answer three questions.
 - What is the state of the Great Lakes and St. Lawrence River basin? This question is addressed in the State of the Basin section of this summary.
 - What role does the federal government play in protecting and preserving this key ecosystem, and how is it performing in that role? In examining the role and performance of the federal government in each of the subject areas, our objective was to answer the following questions:
 - Has the federal government fulfilled its mandate, legislative responsibilities, and other policy commitments?
 - Has the government applied good management practices?
 - Has the government established good governance structures?

These questions are addressed in the section of this summary dealing with our subject findings. The criteria we used to arrive at the answers are presented in Exhibit 1.

- How can the federal government do better and advance the sustainable development of the basin for generations to come? This question is addressed in the recommendations at the end of this summary.

Geographic coverage

5. The geographic scope of our audit was the freshwater system of the Great Lakes and St. Lawrence River basin, extending from Thunder Bay in the west to Quebec City in the east. We focussed largely on the Mixedwood Plains ecozone (Exhibit 2).

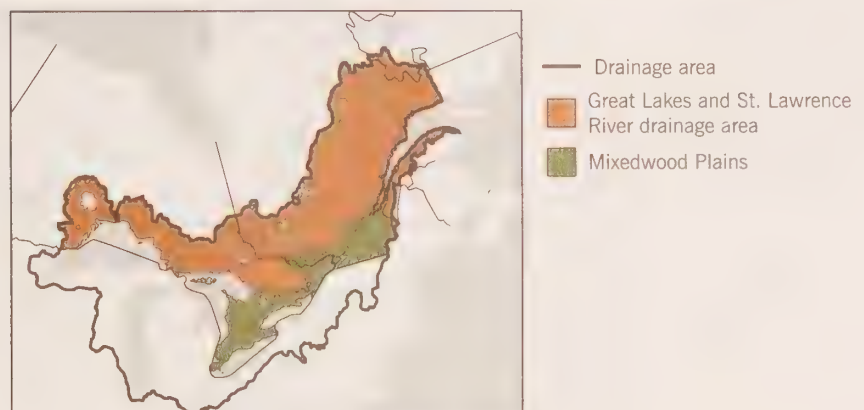
Exhibit 1 Audit objectives and criteria

Objectives	Criteria
① Has the federal government fulfilled its mandate, legislative responsibilities, and other policy commitments?	We expected that the federal government was fulfilling the responsibilities and commitments it has made in legislation, international agreements, departmental policies and plans, sustainable development strategies, and similar documents. This includes a commitment to use an ecosystem approach to managing.
② Has the government applied good management practices?	We expected that the government was using good management practices in the areas we examined. These practices include the following: <ul style="list-style-type: none"> • Understanding existing risks, emerging threats, and opportunities. • Establishing clear and consistent priorities for programming. • Translating priorities into plans that define expected results. • Evaluating and applying appropriate tools to achieve the expected results. • Obtaining and using the necessary information (environmental, social, and economic) for decision making. • Establishing indicators of progress. • Using those indicators to measure progress. • Sharing information and lessons learned.
③ Has the government established good governance structures?	We expected that the government was using appropriate institutions and mechanisms to manage the issues we examined. Specifically, we expected to find the following: <ul style="list-style-type: none"> • Credible reporting. • Effective accountability arrangements within and among departments and, where appropriate, between departments and other jurisdictions or organizations. • Adequate transparency. • Protection of the public interest.

Other matters

6. We intended to develop a comprehensive and consolidated picture of federal spending on environmental and sustainable development issues in the basin. That proved impossible, in part because federal departments don't record their financial transactions region-wide. Where financial information was available on a specific program or activity we audited, we have discussed it in the pertinent subject section.

Exhibit 2 Mixedwood Plains ecozone and Great Lakes and St. Lawrence River drainage area



7. We looked at the federal government's most recent sustainable development strategies (released in February 2001) and found very few references to the Great Lakes and St. Lawrence River basin. However, the strategies do include commitments that we discuss in the chapter under the related subject areas.

Subject matters

8. Many issues have a bearing on sustainable development in the Great Lakes and St. Lawrence River basin. Over the past decade, several of them have been the subject of audits and studies by the Office of the Auditor General and the Commissioner of the Environment and Sustainable Development. They include climate change, toxic substances, smog, environmental assessment, biodiversity, and contaminated sites, among others, and are described in Appendix A. In our audit work for the chapter, we focussed on four subject areas: water, agriculture, fisheries, and species at risk.

9. We also examined selected governance and management practices of the federal government's regional ecosystem initiatives: Great Lakes 2000 and St. Lawrence Vision 2000. Because of its substantial influence on federal programming in the basin, we also audited the federal government's relationship with the International Joint Commission.

Organizational and jurisdictional setting in the basin

10. By any standard, the organizational, jurisdictional, and legal framework in the basin is complex. The political boundaries of this massive watershed do not correspond to the natural ones. Many levels of government are involved in managing the basin's environment and sustainable development: two federal, two provincial, eight state, and hundreds of regional and municipal governments. Our audit examined only the performance of Canada's federal government. The key agreements, organizations, and programs that affect the issues we examine in this chapter are charted in Appendix B (foldout).

Two federal governments

11. The international border between Canada and the United States bisects all of the Great Lakes except Lake Michigan, which lies wholly in the U.S. Our neighbour to the south has a significant impact on the lakes. The United States accounts for roughly three quarters of the population around the Great Lakes, over 80 percent of its municipal water consumption, and about 90 percent of its industrial water consumption. Actions taken (and not taken) by governments in both countries affect the health of the lakes. To manage their actions and the impacts, Canada and the United States signed the Boundary Waters Treaty (1909) and the Great Lakes Water Quality Agreement (1972, 1978, 1987), and created the International Joint Commission to assist in administering both.

12. Authority for international matters. Parliament has authority to act on all environmental concerns that Canada shares with the United States (however, Canada cannot use its international treaty-making powers to give itself legislative powers it does not have under the Constitution).

Separating federal and provincial jurisdictions

13. Canada's responsibility for protecting the basin is further complicated by the constitutional split in legislative powers. The federal and the provincial levels of government both have authority to protect the environment. Both levels share jurisdiction over most of the subjects we examined for this report—water, agriculture, species and spaces, and fisheries.

The Great Lakes Water Quality Agreement

14. The federal governments of Canada and the United States signed the first Great Lakes Water Quality Agreement in 1972. It remains a dominant influence on federal activities in the Great Lakes. It has been updated and amended several times, and each amendment created new obligations.

15. Initially, the Agreement focussed on the presence of excess nutrients in the lakes. Revisions in 1978 shifted the emphasis of the Agreement toward a call for the "virtual elimination" of persistent toxic substances from the lakes. These substances were increasingly associated with damage to the health of fish and wildlife in the basin.

16. The 1978 revisions broadened the goals of the Agreement from restoring and enhancing "water quality in the Great Lakes system" to restoring and maintaining the "chemical, physical and biological integrity of the waters of

the Great Lakes basin ecosystem.” This shifted the focus of the Agreement from protecting the lakes to protecting the ecosystem.

17. The Agreement was amended again in 1987 to require remedial action in heavily degraded locations or “areas of concern” around the lakes. The 1987 amendments mandated the development and implementation of lakewide management plans. The 1987 amendments also revised existing annexes to the Agreement and committed Canada and the U.S. to control pollution from non-point sources, identify the nature and extent of sediment pollution, and develop methods to evaluate the impact of contaminated sediments and the technological capabilities of programs to clean them up.

The federal government’s presence in the basin

18. Today, the federal presence in the basin takes many forms. There are national policies and department-wide programs that are applied regionally. Examples are the Federal Water Policy, the Policy for the Management of Fish Habitat, scientific research and monitoring, stewardship of species, and agricultural income support programs. The efforts of the federal and provincial governments are co-ordinated through the Canada–Ontario Agreement and the Canada–Quebec Agreement. And there are regionally based ecosystem initiatives: the Great Lakes 2000 program and the St. Lawrence Vision 2000 partnership. Some national policies are delivered through the ecosystem initiatives; others are not. The ecosystem initiatives share many similarities but also have important differences.

19. In recent years there have been significant changes in the way our society frames environmental issues, what people and institutions expect of governments, and how governments have responded in their policies, approaches, and institutions. Our work has given us a new appreciation of the challenges facing the federal government. These challenges include a crowded and shifting environmental agenda, the need to cope with multiple expectations and priorities, a shift to volunteerism and prevention, increased demands for public involvement and transparency, and the promotion of partnerships and effective public accountability.

State of the Basin

20. What is the state of the Great Lakes and St. Lawrence River basin? There is no single answer to this question; it can be answered from many viewpoints. We have chosen three: historical, science-based, and international.

21. **Historical perspective.** Looking back at the basin over the past 100 years, we see how dramatically it has changed as a result of our growing presence. According to the International Joint Commission in its Ninth Biennial report, “The Great Lakes environment has improved dramatically over the past quarter-century.” This is evident in pollution abatement, the emergence of more sustainable agricultural practices, recovery of some species, and efforts to protect wetlands and vital remaining habitats.

22. We have also seen more types and a changing mix of industrial, agricultural, and other human activities, with consequences both anticipated and unanticipated. And while we have seen their impacts on the basin multiply, we have also seen some issues persist over time. Others that we thought were being managed effectively appear to be recurring.
23. Local conditions—a growing population, continued urban and industrial growth, current agricultural practices, and increasing recreational demands—continue to pose a significant challenge to the health of the basin. So do global influences, such as climate change and long-range transport of air pollution.
24. It is important to note that the successes of the last 30 years were hard won, through targeted and sustained attention. They were based on a significant scientific capacity that grew out of the environmental awareness of the 1970s. That scientific capacity will continue to be needed as new issues emerge—such as climate change and endocrine disrupters (chemicals that may have an adverse effect on human and ecological health by disrupting normal hormonal systems)—and as urban development and technological advances continue to change the face of the basin.
25. **Scientific assessment.** Scientists in both Canada and the United States are working to understand the state of the basin. At SOLEC 2000 (an environmental conference), the state of the lakes as measured by 33 indicators was reported, using five qualitative ratings: poor, mixed deteriorating, mixed, mixed improving, and good. The state of the St. Lawrence River and lakes Superior, Michigan, Huron, and Ontario was found to be “mixed.” Lake Erie was considered “mixed deteriorating.” Overall, while drinking water was rated “good,” and fish consumption advisories and swimming advisories “mixed improving,” many indicators raised concerns about the state of the Great Lakes and St. Lawrence River basin (exhibits 3 and 4).
26. **International perspective.** The Great Lakes and St. Lawrence River basin is one of the most famous freshwater resources in the world. Many of the threats it faces are encountered throughout the world. From the Rhine River and the Baltic Sea in Europe to Lake Victoria and Lake Chad in Africa, from the Rio Grande in North America to the Aral Sea in Central Asia, human activity is leaving its footprint. Some of the problems in these other watersheds are more serious than those in the Great Lakes and St. Lawrence River basin. Many are expected to get worse—not better—over time.
27. One of the most infamous is the Aral Sea. It is perhaps the most graphic example of the serious impacts that mismanagement and poor planning can have on a body of water.

						← decreasing	◆ steady
						→ increasing	? unknown
	Indicator	Poor	Mixed deteriorating	Mixed	Mixed improving	Good	
COASTAL WETLANDS	Amphibians		←	◆			
	Snapping turtles			◆			
	Bird diversity and abundance		←				
	Area by type		←				
	Effects of water levels		←				
HUMAN HEALTH	Air quality			◆			
	Swimming advisories				→		
	Drinking water					◆	
	Fish consumption advisories				→		
LAND	Alvars			◆			
	Hardened shoreline		←				
	Bald eagles				→		
	Urban density			?			
	Brownfields					◆	
	Mass transit			?			
	Sustainable agriculture			◆			
OPEN AND NEARSHORE WATERS	Walleye			◆			
	Hexagenia				→		
	Preyfish			◆			
	Sea lamprey			◆			
	Lake trout				→		
	Scud		←				
	DELT (Lake Erie)	◆					
	Phytoplankton			?			
	Phosphorous concentration / loads			◆			
	Contaminants in water birds					◆	
	Zooplankton			?			
	Atmospheric deposition				→		
	Toxic chemicals in offshore waters			◆			
SOCIETAL UNBOUNDED	Acid rain			◆			
	Non-native species (aquatic)		←				
	Water use			?			
	Economic prosperity			◆			

Exhibit 4 State of the St. Lawrence River—rated by indicator

Indicator	<div>↔ mixed</div> <div>➔ increasing</div> <div>◆ stable</div> <div>? unknown</div>		
	Deteriorating	Mixed	Improving
Sediment quality			➔
Water quality (river)			➔
Water quality (tributaries)			➔
Biodiversity		?	
Natural spaces and protected species		?	
State of biological resources		↔	
Marine transportation		↔	
Modification of bottom and hydrodynamics			➔
Modification of shorelines		?	
Urban waste water emissions			➔
Industry waste water emissions			➔
Commercial fisheries		↔	
Recreational hunting and fishing		◆	
Access to shoreline and river		?	
Human health		?	

Most of the data are for the period ending in 1996 or 1995.

Source: L'État du Saint-Laurent, rapport technique, Mise à jour des indicateurs environnementaux, SLV 2000

Role and Performance of the Federal Government: Subject Findings

Water

28. Water is the dominant feature of the Great Lakes and St. Lawrence River basin. Canada has an extraordinary wealth of water resources. We have more lakes than any other country and more water per person than any other large country. Despite being one of the world's biggest users of water, we use less than two percent of the fresh water that our national watercourses renew each year.

29. The waters of the basin provide our drinking water, support our recreation, and drive our industries and agriculture. The lakes and rivers provide habitat for terrestrial and aquatic species alike. In the basin, industrial, municipal, and agricultural pollution affects the quality of this vital resource and affects our health and quality of life. And the interest in removing water in bulk from the Great Lakes could have serious consequences for local supplies and uses of water in the future. We must ensure that our use of it can be sustained.

What we audited

30. We looked at federal efforts to reduce water contamination by industrial and municipal effluents and to clean up contaminated sediment, particularly in 17 areas of concern around the Great Lakes.

31. We examined the federal government's role in safeguarding drinking water and its performance in monitoring surface water and the quantity of groundwater in aquifers. We also looked at what it is doing to curb large-scale withdrawals of water for export and at its activities to encourage more efficient use of water by Canadians.

32. We then assessed the federal government's performance at a broader level. How has it planned for its activities in the watersheds of the basin? How does it set priorities for fresh water and how has it carried out its 1987 Federal Water Policy?

What we found

33. **Overall.** The federal government and its partners have been active in the basin for several decades, with some positive results. Federal and provincial regulations to curb toxic emissions from industry, investments in sewage treatment plants, and actions to prevent the bulk removal of water from the basin are all examples of actions that have made a difference. But the job is far from complete: recent trends show that some aspects of water quality in the basin may be deteriorating.

34. With this in mind, our overarching concern is the ambiguity of federal commitments. We often saw federal departments doing things without having clearly articulated what they wanted to achieve. Cleaning contaminated sediment, getting areas of concern delisted, promoting realistic water pricing, and protecting public health by ensuring that people know when it may not be safe to drink the water or eat the fish—all are areas where the federal commitment is unclear. Indeed, federal departments often define their role as supporting the priorities of others rather than their own.

35. The government does not have some of the basic information it needs to develop priorities and action plans. For example, it has no overall picture of the many contaminants in the basin or the contribution of groundwater to the basin. Consequently, it is involved in many remedial actions with no way to determine which are the most important and what they will contribute.

36. **Contaminants.** Ongoing federal commitment and action over the past 30 years to ensure that industry reduces its contamination of the basin have helped to improve water quality throughout the basin.

37. Effluents from municipalities, however, remain a serious source of contamination. Municipal systems that are not properly designed to treat the range of substances found in effluents allow them to flow into our waters without adequate treatment. After 30 years of improvements, 40 percent of municipal effluents of the cities considered continue to receive only primary treatment. This progress may not be sufficient to realize the federal government's objectives.

38. The federal government's approach to effluents from municipal treatment plants and outfalls has been strikingly different from its approach to industrial effluents. It has not used its regulatory powers, but instead has focussed on providing financial support to municipalities. Environment

Canada has been working with the provinces recently to develop a national strategy on municipal wastewater effluents.

39. Contaminated sediment. Contaminated sediment is the legacy of years of government inaction while industrial plants and municipalities released high volumes of untreated or poorly treated effluents directly into the basin's lakes, rivers, and streams. It has been present in all areas of concern and at dozens of sites along the St. Lawrence River. The federal government has conducted studies of contaminated sediment and has assisted in the cleanup of some sites. However, it has neither clear commitments nor a long-term game plan for remediating contaminated sediment. Many sites still await action.

40. Areas of concern. In 1985, the International Joint Commission and the Canadian and U.S. federal governments, the Ontario government, and some state governments in the U.S. identified 42 geographic areas of concern along the shores of the Great Lakes; another was added to the list in 1991. These were areas that were severely degraded. Twelve were in Ontario, and five others along connecting rivers were shared by Canada and the U.S. The federal government has been active in setting up structures for action in areas of concern. It has generally managed its cleanup fund well in assisting projects in areas of concern, although a clearer rationale is needed for financing actions in the future.

41. Of the 17 areas of concern identified in Canada in 1985, 16 are still on the list. The federal government has not decided what it wants most to accomplish in areas of concern. It is not clear how or when it plans to restore the remaining areas of concern and see them delisted. The federal government needs to provide greater leadership and support—setting priorities, clearly linking proposed actions to criteria for delisting, and brokering co-ordinated action by other governments and organizations.

42. Drinking water. Generally, the state of Canada's drinking water is considered good, but recent events have shaken the public's confidence. Drinking water is primarily a provincial responsibility. Since 1968, Health Canada has played a key role in the development of drinking water quality guidelines to protect Canadians' health. But it does not know the quality of drinking water across the country or whether the provinces are applying the guidelines.

43. Monitoring and planning for water quality. Environment Canada is meeting its basic obligations to monitor water for the presence of contaminants listed in the Great Lakes Water Quality Agreement. The federal government's understanding of changes in water quality, however, is based on a limited number of substances that are known to be harmful to human health. Many substances are not monitored at all.

44. The federal government, with its partners, needs to do much more to understand the risks to water quality in the Great Lakes and the St. Lawrence River and to focus its efforts more effectively. The presence of critical contaminants is generally known, but not always their sources. Almost

14 years after the federal commitment to develop lakewide management plans, most of them are still in their early stages of development. The plans that do exist for the basin tend to be weak. It is not evident when the plans will be completed or whether the government will use them for strategic direction of its own and others' actions to restore the Great Lakes.

45. Bulk water removal. The bulk export or diversion of water is a major concern of Canadians. The federal government has taken steps to carry out a strategy on bulk removals of water, in collaboration with the provinces. But we note that the government took more than a decade to take action after its 1987 policy commitment. The strategy was not yet complete by the end of our audit, and it is not clear whether it will be enough to prevent large-scale exports of Canada's fresh water.

46. Groundwater. Groundwater aquifers are the prime source of drinking water for 28 percent of Ontario and Quebec residents. In 1987, noting that knowledge of groundwater in the basin was incomplete, the federal government committed to improving its understanding of groundwater aquifers. However, it has gained little understanding of groundwater in the basin since then. Its knowledge has remained fragmented and incomplete.

47. The Federal Water Policy. In 1987 the federal government released its water policy. But the policy was set adrift because funds and specific departmental responsibilities were not allocated. It became unclear which of the five strategies or 25 policy statements and related activities in the water policy were still priorities. Through the years, the government has lacked a consistent and clear strategy for updating the Federal Water Policy. The timetable for updating the policy and the associated departmental roles and responsibilities, whether as part of a national strategy or not, is unclear.

48. Its 1987 Federal Water Policy committed the federal government to promoting and applying realistic pricing and user pay principles. The federal government has not effectively implemented its policy to reduce domestic consumption of water through demand management and realistic pricing. The design of its funding programs does not specifically encourage water pricing as stated in its water policy.

Agriculture

49. Agriculture in Ontario and Quebec accounts for the largest single use of land in the basin and contributes about 40 percent of the value of agricultural output in the Canadian economy. Over 100,000 farms produce a wide range of crops that help to feed the more than 16 million consumers in the region and contribute to Canada's exports.

50. Farming also has a substantial impact on the environment. It accounts for 5 to 20 percent of all water consumption. It causes soil erosion, water pollution, and loss of biological diversity, which affect the long-term sustainability of the watershed.

What we audited

51. We examined the impacts of manure and fertilizer on soil and water and how the federal government contributes to managing soil erosion. We then

looked at how well Agriculture and Agri-Food Canada assesses the environmental impacts of its policies and programs that support economic goals but that may have unintended consequences for the environment. Next, we looked at how effectively the federal government works toward achieving environmentally sustainable agriculture in the basin.

52. We examined the different roles of the federal government—promoting stewardship, establishing regulations, conducting and co-ordinating research, and monitoring the state of the basin. We looked at how well it has established its own roles and responsibilities and helped to define those of other players.

What we found

53. **Overall.** The federal government is attempting to manage the environmental impacts of agriculture. It is confronting long-standing problems and must also respond to new demands. It has laid part of a foundation for effective management, such as the clear priority it assigns to improving the environmental sustainability of agriculture. But it has left some critical gaps. It has not sorted out who is going to do what. Information is out-of-date. Some action plans have not been developed. Results of key programs are not measured. And federal programs and policies are not working well together.

54. These are important gaps. Some of agriculture's impacts are growing and damaging the basin's environment. Effective management is needed to reverse the trends.

55. **Manure and fertilizer management.** Livestock operations in Ontario and Quebec generate enough manure to equal the sewage from over 100 million people. And the problem of how to manage it safely is getting worse. The misuse of manure and fertilizer on farmland has damaged the ecosystem of the basin.

56. Despite the efforts of Agriculture and Agri-Food Canada, Environment Canada, the provinces, and agricultural organizations over the last decade, nutrients are accumulating in soil on farms in the basin. Their environmental impacts are increasing. Roughly 70 percent of Ontario and Quebec farmland had much higher nitrogen levels in 1996 than in 1981. On more than 30 percent of farmland, the levels of residual nitrogen pose a risk of water contamination.

57. Many producers need to improve their farming practices. Agriculture and Agri-Food Canada and Environment Canada have offered financial incentives and promoted good practices to encourage good management of manure. The federal government has not determined what effect these measures have had on the quality of the environment. There are federal objectives for controlling nitrogen and phosphorus but not bacteria. There is no plan that sets out clear responsibilities for achieving the objectives. It is time for the federal government to rethink its approach, recognizing that this is a long-term problem.

58. Agriculture and Agri-Food Canada has supported several initiatives for research and technology transfer, including the Hog Environmental Management Strategy. It is not clear yet whether this mix of initiatives will produce the strategic, well-co-ordinated research effort that is needed.

59. Soil erosion. Close to half of Ontario's agricultural soil is at risk of washing away faster than new soil can form. More than 10 years of federal and provincial government intervention has slowed soil erosion somewhat, but at a rate that could take 90 years to bring soil loss down to sustainable levels. Agriculture and Agri-Food Canada has identified overall objectives for reducing soil erosion, but has no action plan detailing how it expects to achieve them.

60. Baseline soil information is essential to good land management decisions, but the present data are becoming more outdated and less useful as time passes. Today, little or no new soil data are being collected. The federal and provincial governments have no formal mechanism for co-ordinating data management.

61. Assessing the environmental impacts of policies and programs.

Agriculture and Agri-Food Canada spends far more money on agricultural programs in the basin such as crop insurance and disaster assistance than it spends directly to reduce the impacts of agriculture on the environment. Faced with potentially conflicting goals, the Department needs to carefully and explicitly consider the environmental implications of its policies and programs. The Department has failed to fully meet its commitments to evaluate the environmental consequences of existing and planned policies and programs.

62. In 1996, the federal government made a commitment to Parliament to have departments assess the environmental impacts of their existing tax measures, grants, and subsidies. Agriculture and Agri-Food Canada has made limited progress in the study of its existing measures, and has not completed it. Nor has it reported on the status of this review.

63. In 1990, Cabinet directed federal departments to assess the environmental impacts of their new policies and programs. Agriculture and Agri-Food Canada has no systematic, formal process to conduct the assessments. As a result, the Minister cannot be assured that the Department is complying with the Cabinet directive.

64. The *Farm Income Protection Act* requires Agriculture and Agri-Food Canada to carry out environmental assessments of its income support programs for farmers, which include the most costly programs in the basin. Several major programs are excluded from the requirements, but there are gaps nonetheless in the Department's compliance with the requirements. The Department does not attempt to monitor the actual impacts of its policies on the environment to determine whether its predictions in its assessments have been accurate.

65. Agriculture and Agri-Food Canada does research to increase animal and crop production. But it has not evaluated its research enough to know the

impact on environmental sustainability. The information used to select individual research projects does not have enough details on the potential environmental effects. We also found that evaluations of some of the Department's broad research areas applicable in the basin did not take account of the possible environmental effects. Evaluations of its research centres focus on the economic impacts of research and whether its needs of the agriculture industry have been met.

66. Working toward environmentally sustainable agriculture. Farming practices in the Great Lakes and St. Lawrence River basin are having effects on the environment that cannot be sustained. While some impacts such as soil erosion are improving slowly, others such as water contamination and loss of wildlife habitat are getting worse. In addition to soil erosion and pollution from manure and fertilizer, the federal government must manage issues such as the risks in using pesticides, the loss of biodiversity, and greenhouse gas emissions.

67. The federal government has used financial incentives and promoted good farming practices to influence the way farmers manage the environmental impacts of their operations. It has met with some success—practices such as conservation tillage that reduce soil erosion and can benefit farmers economically are now widely used. But it has not evaluated the impact of its environmental programs on the quality of the environment in enough detail to say whether the programs are making sufficient progress.

68. The federal government shares responsibility with the provinces for achieving sustainable agriculture and, increasingly, with private industry. There is no up-to-date framework of roles and responsibilities for use in working with the provinces to set and achieve environmental objectives for agriculture in the basin. Agriculture and Agri-Food Canada has not integrated its policies and programs in the basin effectively with those of its federal and provincial partners.

69. Over the last decade, funding for agricultural environmental programs has dropped, and the focus has changed to educating the public and supporting voluntary groups. It is not clear who is responsible for what long-term outcomes.

70. Agriculture and Agri-Food Canada needs to improve the way it sets priorities in agricultural research, one of its prime tools. It also needs to do a better job of directing program funds to where they will do the most good. The Department could make its policies and programs more effective by coupling them—for example, linking income support programs to environmental programs.

71. The Department has developed agri-environmental indicators that are an impressive synthesis of several years' work; they play a key part in managing environmental issues. At the end of our audit, the Department had not allocated the resources and expertise needed to sustain this reporting framework.

72. The federal government has not said how it will achieve sustainable agriculture in the basin. It has identified some measurable objectives for the sector, with clear deadlines, but has not said how its own activities will contribute to those objectives.

Species and spaces at risk

73. Plants, mammals, and fish and their habitat are important parts of the biological diversity of Canada and the basin. Protecting and recovering species at risk and practising stewardship of wildlife habitat, including wetlands, are integral to sustaining the biological diversity and environmental health of the basin.

What we audited

74. We examined three aspects of the federal government's efforts to conserve species and spaces at risk: to protect and recover species at risk; to conserve wetlands habitat, including the management of national wildlife areas and migratory bird sanctuaries; and to promote stewardship—voluntary actions undertaken to conserve habitat.

75. One theme these aspects have in common is the importance of habitat. The loss and degradation of habitat, including wetlands, is one of the main reasons why species are at risk—without habitat, they cannot survive. Stewardship means preserving the habitat we still have.

What we found

76. **Species at risk.** In theory, once a scientific determination is made that a species is at risk, the recovery process is straightforward. A lead agency is identified, a recovery plan developed, the plan's actions carried out by various stakeholders, the results tracked, and the plan adjusted. In practice, the scientific process is overburdened. In some cases, there is a need to clarify who leads what; the lead party cannot force unwilling partners to act; and, until recently, recovery efforts have been underresourced and results not measured and reported adequately.

77. There are 50 species in the basin under federal jurisdiction that are threatened or endangered. These are rough estimates; there is no comprehensive inventory of all species on federal lands. Almost half of these species do not have recovery plans, despite federal commitments to prepare them. Historically, Fisheries and Oceans has not managed freshwater species at risk in the basin. However, as it gets more involved in recovery efforts, it will need to clarify its role in relation to provincial roles, especially where a province has already been active in recovering or protecting a freshwater fish species.

78. Only 10 percent of the species under the federal government's jurisdiction in the basin have stable or improving populations; trends for the remaining 90 percent are either declining or not reported. Recovery plans and actions do not guarantee the recovery of a species. Recovery plans are not binding; recovery teams have no authority to ensure that they are carried out.

79. The federal government recognizes the need for federal species-at-risk legislation. However, meeting its commitments to pass such legislation continues to be a challenge. In 1997, its proposed *Canadian Endangered Species Protection Act* died on the order paper when a federal election was announced, as did Bill C-33 (the proposed *Species at Risk Act*) when the fall 2000 election was called. In February 2001, Bill C-5 (a revised version of the proposed Act) was introduced in the House of Commons.

80. In its February 2000 Budget, the federal government announced \$180 million in national funding over five years for a new species-at-risk program, including stewardship initiatives. Despite this major increase in funding, the federal departments and agency involved in the program are concerned that there will be serious gaps.

81. Reporting of recovery actions has been incomplete and inconsistent. However, the federal government has developed comprehensive performance indicators for its new species-at-risk program. If progress measured by the indicators is reported consistently, it will be a significant improvement over current reporting.

82. **Wetlands.** The federal government has participated in restoring and protecting wetlands. While these activities are encouraging, there is not enough information on the current status of wetlands to say whether it is improving or getting worse. Environment Canada and Fisheries and Oceans are involved in efforts to improve the information on wetlands in both the Great Lakes and the St. Lawrence River.

83. National wildlife areas and migratory bird sanctuaries are important biological assets that are the responsibility of Environment Canada. Many of the national wildlife areas and migratory bird sanctuaries in the basin contain wetlands, some of international significance. However, Environment Canada lacks the personnel and financial resources to manage them effectively. Most management plans for national wildlife areas have not been updated since the early to mid-1980s. There is limited monitoring of public access to and use of national wildlife areas, and the federal government undertakes limited scientific research in them. Moreover, Environment Canada does not sufficiently enforce its regulations under the *Canada Wildlife Act* and the *Migratory Birds Convention Act* as they pertain to national wildlife areas and migratory bird sanctuaries.

84. There is no single federal department or agency formally responsible for wetlands. Designating a lead department or agency would strengthen accountability for monitoring, evaluating, and reporting federal action on wetlands.

85. **Stewardship.** Given the little amount of land it owns in the basin, the federal government needs to influence what happens on the land it does not own. To do this, it has made stewardship one of the three priorities of its national strategy to protect species at risk.

86. To that end, it is involved in 15 programs and initiatives that support stewardship in the basin; they offer financial support and incentives, rewards

and recognition, and education and outreach services. However, it delivers these programs without a cohesive stewardship strategy. A strategy would ensure that the individual programs were focussed on complementary goals and their results could be reported consistently. Further, the federal government does not produce summary reports of its efforts, their costs, or the results they achieve.

87. The performance of federally funded stewardship projects is measured and reported, but there is limited reporting of their longer-term outcomes. There is also limited reporting of habitat losses and the extent to which they offset the gains made by stewardship projects. This makes it difficult to determine the net benefits of stewardship projects and to know whether the state of habitat in the basin is getting better or worse.

Fisheries

88. People in the basin rely on fish for food, a livelihood, or recreation. Each year, the basin's lakes and rivers supply more than \$40 million in commercial fish landings and support economic activity worth over \$100 million. Recreational angling in the Canadian portion of the basin provides a further \$350 million a year in economic benefits.

89. The health of fish and fish populations is a barometer of the condition of the lakes. Chemical pollution in the water has contaminated the fish; consumption advisories have been issued for each of the Great Lakes and for the St. Lawrence River. The stocking of sport fish and the presence of invasive exotic species have had enormous impacts on the ecosystem.

What we audited

90. We examined four different aspects of the federal government's responsibilities for fisheries in the basin. We looked at what the federal government is doing to prevent and control invasive aquatic species. We asked whether the federal government is doing enough to protect, restore, and enhance fish habitat. We looked at whether Fisheries and Oceans gets and uses the scientific information it needs in making its decisions. Finally, we looked at the bigger picture—whether the federal government is fulfilling its responsibilities to conserve and protect the fish of the basin for their sustainable use by present and future generations.

What we found

91. **Overall.** Fisheries and Oceans is the lead federal department for aquatic ecosystems. Cuts in departmental funding and the federal decision to retain its freshwater fish habitat management responsibilities have had a pervasive effect on the Department's ability to carry out its mandate in the Great Lakes and St. Lawrence River basin.

92. **Defining the federal role.** While Fisheries and Oceans has the overall responsibility for protecting and conserving the fisheries resource, it relies on related programs carried out by provinces and other federal agencies. But it does not look regularly at the effects of those programs on the aquatic ecosystem. Furthermore, it has not clearly defined its role in freshwater

fisheries or clearly stated what it expects to achieve in its activities to protect the aquatic ecosystem and thereby the fish of the basin. Fisheries and Oceans has not evaluated whether it is contributing in the most effective way to the activities of the Great Lakes Fishery Commission.

93. The Department has no formal vision of the aquatic ecosystem it wants to promote in the basin. It has no criteria for determining when it should intervene to protect fish. And it has not kept Parliament informed of its plans in the basin or the results of its programs to date. Work with the provinces is under way to develop a national freshwater fisheries strategy, which is needed to establish clear accountability relationships. It remains to be seen whether the government will make this strategy a priority and provide the funds needed to carry it out and produce lasting results.

94. **Invasive aquatic species.** Invasive species are a serious and growing threat to the ecosystem of the Great Lakes and St. Lawrence River basin—a threat the federal government is ill prepared to counter, despite its commitments. There is no federal policy, no recognized lead department, and no plan to co-ordinate federal action to counteract the environmental, economic, and social impacts of these species. The government is doing little to prevent the arrival of additional invasive species.

95. A major pathway for invasive species to enter the basin is the ballast water carried by commercial ships. But Canada relies on ships' compliance with U.S. regulations and has only voluntary guidelines for ballast water exchange, through the *Canada Shipping Act* administered by Transport Canada. The guidelines do not provide enough protection.

96. Sludge at the bottom of empty ballast tanks can contain not only invasive species but also diseases such as cholera. Foreign ships with no ballast water on board pose a more significant threat than ballast water exchange, as neither the U.S. regulations nor the Canadian guidelines apply to them. Overall, the voluntary guidelines together with the ballast water regulations are only 3 to 17 percent effective.

97. The Sea Lamprey Control Program of the Great Lakes Fishery Commission has proved to be effective. Through this program, Fisheries and Oceans has helped the Commission control sea lamprey populations for more than 40 years. However, since the government cutbacks of the mid-1990s, Canadian funding for the program has been unstable.

98. **Protecting fish habitat.** One of the biggest reasons for declines in fish populations is damage to their habitat. The federal government's 1986 Policy for the Management of Fish Habitat addresses the government's obligations under the *Fisheries Act*—the protection and enhancement of fish habitat by Fisheries and Oceans and the Act's provisions for pollution prevention, administered by Environment Canada. Fifteen years have passed since the policy was adopted and it has not yet been applied fully. The Department does not know whether it is progressing toward its ultimate objective of a net gain in fish habitat.

99. Fisheries and Oceans has struggled to strengthen its habitat management program in Ontario since 1997, when the Province withdrew from administering fish habitat management activities on the federal government's behalf. Staff of Fisheries and Oceans have tried to keep up with the increased workload, but the delays have brought complaints from those seeking advice, guidance, or authorizations.

100. Fisheries and Oceans has no fisheries officers in Quebec and no formal agreement with the Province to monitor habitat protection or enforce the *Fisheries Act* in fresh water. The Province has its own program to protect fish habitat, but unlike the federal program, it does not apply to private land. Fisheries and Oceans believes that freshwater fish habitat in Quebec is being lost.

101. The Department recognizes the problems in its habitat management program. In 1999 it received an annual increase of \$28 million to strengthen the program and promote consistency across the country. However, only some of the improvements will be made in Quebec.

102. Environment Canada administers the provisions of the *Fisheries Act* that prohibit pollution of water used by fish. However, Fisheries and Oceans is still ultimately responsible for those and all other provisions of the Act. It has not determined whether its actions, combined with those of Environment Canada, meet the requirements of the *Fisheries Act*. Specifically, it has not stated clearly how Environment Canada is to apply the Act's provisions for pollution prevention.

103. **Scientific information for decision making.** Scientific information is the basis of informed decisions. The Department lacks scientific information that it needs to carry out its mandate effectively. It lacks information on fish stocks, quantity and quality of fish habitat, contaminants in fish, and the presence of invasive aquatic species. At the same time, new legislation such as the *Oceans Act* is placing more demands on the Department for science.

104. In the early 1990s, federal funding levels for the Department's scientific research in Ontario were unstable. Since then, the situation has deteriorated. Federal cuts coincided with provincial cutbacks, widening the existing gaps in knowledge and research and creating new ones. In Quebec, the Department has conducted almost no freshwater science. Projects that provide key information currently lack a long-term commitment by the federal government to their funding.

105. Fisheries and Oceans has not yet developed a strategy that would guide it in determining what science it needs to do itself, what it should do in partnership with others, and what it can obtain from other organizations.

Ecosystem initiatives in the basin

106. Most of the environmental issues and threats discussed in this chapter are addressed through national or department-wide policies and programs of the federal government. Some of the policies and programs are brought together under the government's regional ecosystem initiatives. Great Lakes 2000 (now Great Lakes 2020) and St. Lawrence Vision 2000 are two programs among six current ecosystem initiatives of the federal government.

What we audited

107. We looked at whether the programs are structured effectively to achieve their objectives. We also assessed whether the federal government has followed good management practices. We did not evaluate whether St. Lawrence Vision 2000 and Great Lakes 2000 are working on the right problems. Nor did we assess the quality of the actions undertaken in the programs.

What we found

108. Roles, actions, and accountabilities. In St. Lawrence Vision 2000, most of the funds committed by the federal government were actually spent. In Great Lakes 2000, however, most federal departments other than Environment Canada significantly reduced their financial commitments and involvement after the budget reductions of 1995. Of \$125 million in new funds announced by the Minister of the Environment, only \$14.9 million was distributed to the departments participating in Great Lakes 2000. Although both programs carried out a number of actions, neither achieved all of the results it had planned.

109. The key roles and responsibilities of both the federal and the provincial partners in St. Lawrence Vision 2000 are clear, and the key results expected of all parties are specified. The program managers have established strong accountability mechanisms as well as management systems capable of tracking actions toward established targets.

110. The initial design of Great Lakes 2000 clearly identified the role of each participating federal department. But when budget reductions substantially curtailed their participation, their planned actions, targets, and associated accountabilities were never revised accordingly. The companion Canada–Ontario Agreement did not clearly identify the respective roles and responsibilities of the federal and provincial departments involved. The Agreement expired in 2000; at the end of our audit it had not been renewed.

111. Local communities. Both programs tried to set up structures that would involve the local communities, though for different reasons. Both have learned valuable lessons about the challenges of mobilizing volunteer community groups, and both have encountered difficulties. In the Great Lakes, a key challenge will be to develop a sense of the permanence—or sustainability—of local structures set up to act on environmental issues. Communities need support from governments to get started but also ongoing support to carry out actions that are beyond local resources or expertise. St. Lawrence Vision 2000 formed ZIP (zones d'intervention prioritaires) committees as forums to build consensus for action on local issues between the governments and community representatives. It gives these groups stable funding and effective oversight.

112. Reporting results. St. Lawrence Vision 2000 progress reports, published every two years, provide information on actual spending by each partner and on results achieved toward each key target of the program. Great Lakes 2000 reports its results in the progress reports of the Canada–Ontario Agreement.

These reports summarize progress toward targets but do not show federal spending. Reporting by Great Lakes 2000 is out-of-date. We are very concerned that neither program was able to demonstrate a link between the achievement of its planned results and changes in the state of the environment.

113. The broad ecosystem approach. One of the principles underlying both these programs is the ecosystem approach. Both have features of such an approach; they both deal with not just one aspect of the environment but a series of interrelated environmental and sustainable development issues.

114. An ecosystem approach considers the effects that a program's activities in one part of the ecosystem may have on other parts. Recognizing that roughly 40 percent of the pollution in the St. Lawrence River originates upstream in the Great Lakes, we expected to find some form of co-ordination between Great Lakes 2000 and St. Lawrence Vision 2000.

115. Basin-wide perspective. In 1997, departmental officials from both programs identified several areas where better integration of upstream and downstream activities would benefit the environment, among them the following:

- toxic substances;
- water levels, including environmental criteria and regulation;
- technologies for cleaning up contaminated sediment and soil; and
- indicators of the state of the environment.

We found, however, that there has been limited co-ordination between the two programs.

116. We are particularly concerned that the two programs have done little to co-ordinate their use of indicators of the state of the environment. Common indicators would make it easier for managers, Parliament, and the public to understand the evolution of the whole Great Lakes and St. Lawrence River basin ecosystem.

117. Finally, we found no formal means of sharing information and lessons learned. At the community level, Quebec ZIP committees and the Ontario public advisory committees have little knowledge of what their counterparts have achieved. For example, the Haut Saint-Laurent and Jacques-Cartier ZIP committees were both involved in projects to clean up contaminated sediment. They were not aware that the public advisory committee in the Collingwood area of concern had succeeded with similar cleanup activities in 1994.

The International Joint Commission

118. Established under the 1909 Boundary Waters Treaty between the United States and Canada, the International Joint Commission has an important role in protecting the shared waters of the Great Lakes. The International Joint Commission holds both governments accountable for progress toward their commitments under the Great Lakes Water Quality Agreement. It is in Canada's interests to use the Commission and ensure that it can fulfil its role.

What we audited

119. We did not audit the work of the International Joint Commission but the federal government's relationship with it, and the federal support for the Commission's activities in protecting the waters of the basin.

What we found

120. The federal government has not provided the International Joint Commission with enough information to properly assess Canada's progress under the Great Lakes Water Quality Agreement. It has delayed answering the Commission's requests for information and responding to its recommendations. The federal government does no formal follow-up to ensure that it will complete the actions it identifies in its responses to the Commission's recommendations.

121. Over the years, federal officials have provided technical expertise to the Commission's boards and study teams. However, the loss of scientific and technical capabilities as a result of budget cuts is putting this support at risk. Finally, the government has delayed its share of funding for the Commission's reference studies.

Conclusion

The trip began long ago

122. Charting and navigating a sustainable course through the Great Lakes and St. Lawrence River basin presents a formidable challenge to governments in Canada. Over many decades, the state of the basin and the performance of governments have been the subject of intense study and debate, especially the Great Lakes portion. A diverse range of stakeholders, including international institutions, academics, scientists, industry, environmentalists, labour, and First Nations, have produced hundreds of reports containing hundreds more recommendations.

123. In this audit, we wanted to see how the federal government has managed major threats to the environment in the Great Lakes and St. Lawrence River basin. The purpose of this concluding section is to summarize key findings, highlight common patterns, and tell Parliament what we consider to be matters of special importance.

The trip so far: Remarkable achievements

124. Historically, the basin has seen remarkable achievements and has been the genesis of many innovations. We identified several strengths in federal activities and specific areas of progress:

- A complex infrastructure of institutions, legislation, policies, and programs has been developed.
- Agreements have been negotiated, partnerships forged, and communities mobilized.

- Our scientific understanding of the threats facing the basin and of ecosystems in general has increased.
- Amounts of some chemical and biological contaminants entering the air, waters, and land have been reduced.
- Lake Erie, once considered “dead,” has been revived.
- Some threatened species and some fish populations are recovering. Wetlands and landscapes have been restored and protected.
- Soil losses have slowed, in part as conservation tillage has become widespread.
- The amount of active ingredient used in pesticides has declined, especially in Ontario.

125. While it is difficult to say precisely what the federal government has contributed to this progress, it deserves credit for its positive influence. Federal officials, scientists, and others have demonstrated significant leadership and dedication. In some cases, the federal contribution is directly observable—developing policies, negotiating agreements, funding projects, and assisting communities. In other cases it is less obvious, in part because many other organizations and individuals also play a role.

Key findings and concerns

126. Exhibit 5 summarizes at a higher level the weaknesses of the government's approach as well as strengths that provide a good foundation for future efforts. As challenging as the past has been, the future will be a far greater challenge. We have come through relatively still waters compared with the whitewater rapids we are quickly approaching. With this in mind, we highlight here our major concerns.

Important matters left to drift

127. The federal government is generally aware of the threats the basin faces, now and in the future. Over time, it has responded with hundreds of commitments to Canadians, in many forms. Some are grounded in international agreements or federal legislation, or stated in government policies. Others originate in departments' sustainable development strategies, ministers' speeches, and government responses to various reports. In each of the subject areas and issues we examined, we set out to determine whether the federal government was doing what it had said it would do. Was it meeting its commitments to Canadians?

128. It is not always clear what the government stands for. Overall, we have serious concerns about the lack of transparency and clarity of the government's commitments and priorities. Many of the commitments are stated in vague and general terms that cannot be measured. Other commitments are outdated—though they still exist on paper, in practice they have long since been abandoned.

129. Commitments not met, policies not implemented. Our audit found that the federal government's record of meeting its commitments is mixed. Some have been met, but many key ones have not. Faced with multiple priorities and greatly diminished funding, departments are spreading their

efforts thin. The pace of progress in many respects is slow. In some cases, this lack of progress is not news: the government itself has reported it.

130. Too many priorities for the resources given. The impacts of declining and unstable funding are too clear to ignore. As we describe in our observations on Great Lakes 2000 and St. Lawrence Vision 2000, funding cuts made it hard for departments to meet their obligations. This was especially obvious in Great Lakes 2000—much of the promised funding never arrived and existing budgets were slashed. The carefully developed plan of action unravelled as departments simply withdrew from the program. St. Lawrence Vision 2000 also suffered some cuts, but not as large as those in the Great Lakes 2000 program. Cuts in federal budgets affected programming outside the ecosystem programs, too.

Exhibit 5 Holding the federal government to account

Area	Strengths	Weaknesses
Planning	Developed a good understanding of many threats facing the basin. Established plans and identified priorities for many issues.	Many commitments and priorities to deal with key threats to the basin's sustainability are general and vague, and results are difficult to measure. Many specific long-term outcomes desired for the basin have not been identified, and related plans have not been developed. Funding has declined, is unstable, and is insufficient to meet all commitments.
Using tools	Developed and implemented a range of tools to address specific issues in the basin.	Only some tools in the federal tool box are being used. Whether the tools used are sufficient to manage threats to the basin has not been assessed. A consistent, co-ordinated basin-wide approach to issues that span the basin is lacking. Federal science activity is weakened. There are significant gaps in scientific knowledge needed to understand and manage threats to the basin.
Working with others	Established effective partnerships at the local, provincial, federal and international levels. Engaged local citizens.	Roles and responsibilities—who is responsible for what—are often unclear. Accountability arrangements with partners to make sure federal objectives are met are weak.
Getting results	Achieved gains in several areas.	Many key commitments have not been met; many key initiatives have not been completed; departments are spreading their efforts thin.
Monitoring and reporting	Collected and disseminated information on a variety of topics. Developed some environmental indicators. Developed some indicators for measuring performance.	Data gathered to understand the nature and trends of key threats to the basin are insufficient and inconsistent. Development of indicators of the state of the Great Lakes and the St. Lawrence River is unco-ordinated. How federal activities have improved the basin's sustainability has not been analyzed or demonstrated. Information to Parliament and others does not afford a clear understanding of federal progress.

131. Although the federal government has been successful with its agenda of deficit reduction, our audit found many significant gaps between the commitments it has made and the resources it has allocated to meeting them. Clearly, federal commitments are out of step with the resources given; one or the other needs to change.

132. But diminished funding is not the only reason why the government is not meeting key commitments. The limited use of federal powers, weaknesses in basic management and accountability, and the politics of federal–provincial relations have all played a part.

133. Reporting to Parliament and others. Our audit found several examples of incomplete reporting to the public, international organizations (such as the International Joint Commission), and parliamentarians. Information needs to improve significantly on a variety of fronts, including budgetary allocations and expenditures, progress made toward specific commitments, and the state of the basin. Integrated reporting of this information could be valuable.

No federal strategies for key issues

134. Many of the threats to the basin today have been present for decades, and many of the pressures will not go away; people place demands on their environment. Past experience demonstrates the need for constant vigilance, a long-term view, sustained actions, research and monitoring, and stable funding in line with commitments. Much of this is missing from federal programming.

135. Instead, we found a short-term approach to most of the issues on the agenda. The government takes incremental steps to demonstrate its forward momentum—a bit more research, another study, a new regulation, another species recovery plan. These are all necessary actions, but it is hard for Canadians to know where they are all heading, what ends they are meant to achieve. Many programs we looked at do not take a long-term view of the issues.

136. We do not suggest that the government can develop an all-encompassing solution that will end the need for action; for some problems, that kind of solution cannot be found. We do suggest the need for a long-term plan for living within the carrying capacity of the ecosystem—a plan with a sense of vision, concrete steps, clearly defined roles, dedicated resources, and follow-through. Today, even where the federal government’s commitment to a specific activity or result is clear, its long-term role and those of its partners in managing the issue are not always so clear.

137. A basin-wide perspective. The Great Lakes and the St. Lawrence River form a single hydrologic basin whose natural boundaries defy political distinctions. The federal government is uniquely positioned to identify broad threats and select priorities from a basin-wide perspective, but it has not done so. On key issues there is no co-ordinated and consistent federal voice in the two regions. The regional ecosystem programs are relatively isolated from one another. Officials of both ecosystem programs have identified activities that could be integrated better to benefit the environment.

Scientific research, monitoring, and measurement systems are impaired

138. If we meander off course, will anybody know? One species lost, soil washed from one farm, untreated effluent from one city, one more wetland lost, one invasive species altering the ecosystem, a stretch of shoreline eroded—each alone may not be a crisis. But their cumulative impact on the basin is what concerns many scientists.

139. Our ability to detect and measure changes in the environment has a direct bearing on the quality of the decisions we make. Good scientific information is needed to understand the basic functioning of ecosystems. And further, it is needed to determine how effective past actions have been and to identify emerging trends and issues that may warrant future action.

140. Several of our audits in the past have pointed to problems in the government's ability to conduct needed scientific research and monitoring. Our work on biodiversity, climate change, toxic substances, and urban smog have reached similar conclusions. Despite repeated assertions by the government that it will provide scientific leadership to support decisions, our present audit reached the same conclusion: there are major gaps in essential information.

141. This isn't news. Several reports and reviews by the International Joint Commission, the State of the Lakes Ecosystem Conferences (SOLEC), scientific research organizations, and the government's own publications (such as the 2001 interim report of the Task Force on a Canadian Environmental Information System) have identified and lamented the weakened state of federal science. Indeed, most scientific assessments of the state of the basin are qualified by a note on the incomplete and inconsistent data that support them. Cuts in funding for scientific research and monitoring have made an already bad situation worse.

142. Indicators are part of the solution, but co-ordination is needed. Part of the scientific challenge is to identify what we need measured. This is behind the recent drive to develop basic indicators of environmental health and sustainable development in the basin and in other parts of Canada—indeed, around the world. As we note in this chapter, even after years of activity a lot of this work is still in its formative stages. We are concerned about the lack of progress.

143. But we are more concerned that the federal government lacks a uniform approach. Separate activities are under way in the Great Lakes and the St. Lawrence River ecosystem programs. Though their challenges are basically the same, each program is "doing its own thing," with not enough co-ordination between them.

144. Basic measurement is missing. Not enough information is collected for the public and the government to know whether the state of the basin is getting better or worse overall. Most critically, the federal government has trouble demonstrating the links between its activities and actions and their impacts on the state of the basin.

145. A long way to go to understand how ecosystems work. In the latter part of the 20th century, science ushered in a new awareness of how different components of natural environments relate to each other. Leading-edge science by Canadians and others substantially improved our understanding of how aquatic and terrestrial ecosystems function. This understanding helped in developing science-based solutions such as controls on phosphorus and persistent pesticides. But today, when basic science is needed more than ever—to understand, for example, the significance and implications of climate change, endocrine disruption, and genetic diversity—it is being eroded. In some areas, such as groundwater and fish habitat, basic mapping is fragmented and incomplete because of years of indecision and uncertainty inside the federal government over who is responsible for what. In still other areas, such as fisheries, the government has not clarified what science it needs.

The changing and waning federal role

146. Concerted actions by many governments, industries, and individuals are required to manage sustainability in the basin. The federal government cannot be expected to do it all. But it should be expected to focus on its distinct role, to be explicit and open about what it is accountable for, and to use the various tools and authorities at its disposal.

147. The federal role is limited, in part, by constitutional constraints. But the government has chosen to limit its role further. It is not using the legislative powers and tools it could use. In the past few decades, especially the last one, the federal government's role changed and it retreated from many areas where it once was active. It is shifting the emphasis from leading to facilitating, from deciding to consulting, from acting to studying, from intervening directly to relying on others.

148. The growing reliance on partnerships: More work to be done. The importance of making and maintaining links is a recurring theme in the work of our Office. Links are needed between the federal government and other players in the basin and among federal departments and programs.

149. In the Great Lakes and St. Lawrence River basin, the federal government has worked hard to make the needed links with outside partners, both domestic and international. Many effective partnerships are now in place. But this in turn has raised fundamental questions about the federal government's role in overseeing its partners' actions and providing assurance that federal and national objectives are being met.

150. There is a need for fuller engagement by all departments active in the basin. The federal government has more to do to forge internal links. Although it has made significant progress in recognizing the relationships between individual issues and programs, it has yet to truly integrate or cross-link them. Programs are still fragmented and compartmentalized. Though federal departments acknowledge the need for a concerted effort to manage "horizontal" issues, in our opinion there is a prevailing sentiment that protecting the basin is primarily up to Environment Canada.

151. Tackling the tough issues: Where the government fears to tread. Principles such as “the polluter pays,” the “precautionary principle,” “prevention vs. remediation,” and “pollution prevention” are common themes the federal government articulates in many of its important plans and policies. It leaves the impression that it is committed to doing all of these things. But is it doing them? Is it using the tools it has to ensure that the job gets done?

152. Our audit found in many cases that the federal government was not fully exercising its legislative authorities. Where it does use legislative tools, the government is not looking at how different programs interact—how different economic and environmental policies and programs could support and complement each other more effectively. In other respects, the federal government has not yet equipped itself with the scientific or policy tools to do the job.

153. The federal government’s inaction on many of the issues our audit raised begs the fundamental question, What is its role? What is the value of making domestic and international commitments when, in some cases, there is no capacity to deliver? When the federal government signed the Great Lakes Water Quality Agreement, for example, it assumed an obligation to ensure that action would be taken. The government decided to rely on others, and when others failed to deliver, it did not assume the lead. In our view, the federal government remains accountable for its obligation to ensure that the job gets done. The time has come for it to either take responsibility for its commitments or change them.

The future: Charting a course for sustainability

154. That the basin is a critical resource for Canadians is beyond dispute. That the basin is subject to ongoing, growing, and changing threats and pressures is also beyond dispute. But is there an environmental crisis in the basin? That is largely a matter of perspective.

155. At one level, the state of the lakes and rivers—especially compared with other threatened watersheds around the world—is a testament to the determination and ability of Canadians to manage the basin for the future. Governments have built an elaborate array of important institutions, laws, and programs designed to manage the present and safeguard the future. Past experience offers evidence of our ability to resolve crises as they appear.

156. Other perspectives show a different view. The leadership, innovation, science, and diligence that served the basin in the past have diminished. There is a sense of complacency, not urgency; resignation, not inspiration.

157. The basin our children will inherit will be much different from today’s. Part of the challenge of sustainable development is to ensure that their future is secure. In our view, the federal government is not keeping pace with future needs. While achieving sustainability in the basin is not up to the federal government alone—actions are needed by many other governments and organizations—it does have a crucial and distinct role to play. We look to the federal government, as the leader of this trip, to chart the destination and course (vision, policies, and plans), properly map the approaching rapids and

obstacles (robust science and monitoring), obtain the right equipment (policy instruments and integrated programs) and, working together and with partners, mobilize the expertise and teamwork it needs.

Recommendations and Government's Responses

158. In the following sections of the chapter, we include our subject-based recommendations. We believe that at a higher level, the following are things that the federal government can do better:

- Provide clear-cut federal commitments to deal with key threats to the basin's sustainability.
- Adequately fund its commitments.
- Articulate the long-term outcomes it seeks for the basin, translating them into concrete plans that drive its actions.
- Apply a consistent basin-wide approach, where appropriate, for issues that span the entire basin.
- Reassess whether the legislative and other tools it uses are sufficient to manage threats to the basin.
- Rebuild or acquire the scientific knowledge needed to understand and manage threats to the basin.
- Set-up consistent data gathering to understand the nature and trends in key threats to the basin.
- Analyze and demonstrate how federal activities have improved the basin's sustainability.
- Strengthen accountability arrangements with partners to make sure federal objectives are met.
- Clarify responsibilities within the federal government about who is responsible for what.
- Report information to Parliament and others that provides a clear understanding of federal progress.

Joint interdepartmental response

The following joint response represents a collaborative effort among the departments most impacted by the recommendations of the audit (Environment Canada, Fisheries and Oceans, Agriculture and Agri-Food Canada, Health Canada, Natural Resources Canada, Parks Canada Agency, and the Department of Foreign Affairs and International Trade). Detailed responses to individual recommendations have also been prepared by specific departments as identified in the chapter.

The Commissioner's Office has provided an analysis of the complex issues and institutional arrangements involved in developing and undertaking government programs focussed on the Great Lakes and St. Lawrence River basin ecosystem, and the multitude of interests and pressures that influence it. The chapter identifies the challenges of managing the basin and the need for continuation of an integrated management approach, which involves both domestic and international governments along with key stakeholders.

The Great Lakes and St. Lawrence River basin is cleaner now than it has been in the last 50 years. The vision adopted by the federal government through the ecosystem approach to managing the threats to the basin contributed to these results and continues to be used as a model worldwide. This vision recognizes the direct and indirect correlation between the health of our ecological systems, the health of our communities, and the strength of our economy. It is cross-sectoral and multi-jurisdictional, and it continues to challenge organizations to chart a common path, share information and resources, adopt integrated decision-making processes, and collectively implement policies and programs. Experience to date has demonstrated that this has resulted in greater efficiency in meeting federal commitments and greater effectiveness in achieving environmental results.

At the same time, however, the growing population and economic activity in the area, combined with the threat of climate change, higher consumption of water, increased waste, intensive land use, and the introduction of invasive species, continue to put severe stress on the ecosystem. These factors challenge federal government departments to continue to increase their understanding of the issues facing the Great Lakes and St. Lawrence River basin. Water policy and strategies to protect and conserve fresh water will continue to evolve, based on strengthened partnerships, community-based action, and ensuring that Canadians are provided with information on objectives, actions, and progress in addressing priority issues. Federal departments will continue to build on the ecosystem initiatives. We will work toward a basin-wide approach in partnership with the provinces of Ontario and Quebec, who have major responsibilities, and with stakeholders, to achieve our vision of sustainability for the basin.

The goal of the new Canada–Ontario Agreement, as well as the collaboration underway with the Province of Quebec, is to establish the necessary intergovernmental mechanisms and enhance the federal government's ability to deal with the issues and threats facing the ecosystem. Maintaining and building on these initiatives will address many of the recommendations put forth by the Commissioner to improve and strengthen the management and accountability regimes supporting the Great Lakes and St. Lawrence River basin programs. Ecosystem threats will continue to be examined in terms of the effectiveness of the current legislative and policy framework; scientific capacity, research, data and monitoring implications; and the fiscal framework.

Water What we recommend

159. Our findings show that the federal government needs to decide its priorities for fresh water and clarify its commitments to achieving them. Working with its partners, it needs to develop realistic, scheduled plans with clear accountability; stick to its plans; and provide open and transparent information on results.

160. Recommendation. Environment Canada should reassess its role and clearly articulate its responsibilities and commitments for freshwater management in the Great Lakes and St. Lawrence River basin, and clarify the

commitments expected from other federal departments, especially but not limited to the following:

- i. completing the actions needed for delisting areas of concern;
- ii. remediating contaminated sediment in areas of concern and elsewhere in the basin where it is a significant environmental concern;
- iii. developing lakewide management plans for the Great Lakes; and
- iv. promoting the concept of "a fair value for water" as stated in the Federal Water Policy.

Environment Canada's response

Agree. Water policy and strategies to protect and conserve fresh water will continue to evolve based on strengthened partnerships, community-based action, and ensuring that Canadians are provided with information on objectives, actions, and progress in addressing priority issues. The new Canada-Ontario Agreement (COA) Respecting the Great Lakes Basin Ecosystem provides a clear identification of the five-year commitments of the federal and provincial governments, including Environment Canada (EC). The Department is developing memoranda of understanding (MOU) with its federal partner departments that define the roles and responsibilities of individual departments. Detailed annexes to the Agreement provide an articulation of the specific commitments of each government in relation to the achievement of goals and results. Detailed five-year work plans, which will be developed and updated annually, will provide a fuller description of the roles and responsibilities of the federal and provincial governments.

Over the past few months, Environment Canada has undertaken consultation with other federal departments as part of a process to pursue an action plan for the St. Lawrence in 2003, after the present Phase 3. Further consultations with Quebec government departments are planned for fall 2001.

- i. *Agree. The Areas of Concern Annex to the Canada–Ontario Agreement will provide an articulation of the specific commitments of each level of government for actions required to delist areas of concern.*
- ii. *Agree. The Areas of Concern Annex includes specific results pertaining to contaminated sediment. Remediation of contaminated sediments outside Great Lakes areas of concern elsewhere in the Great Lakes and St. Lawrence River basin will not be undertaken directly by Environment Canada. The Department will, however, identify contaminated sediments in the basin that act as a source of harmful pollutants and will develop sediment management strategies.*
- iii. *Agree. The Lakewide Management Annex provides an articulation of the specific commitments of each level of government for actions required to develop lakewide management plans.*
- iv. *Agree. Given provincial and municipal responsibility for setting prices for water and sewage, Environment Canada will continue to promote "a fair value for water" by providing information on water pricing, water use, and the associated benefits of wise use and conservation, as well as working with provincial and non-government partners to incorporate these objectives into co-operative programs.*

161. Recommendation. Environment Canada, enlisting the participation of others where possible, should develop clear action plans to carry out its commitments for management of fresh water. It should develop initiatives to implement these plans, especially for the following:

- i. remediating contaminated sediment, with the provinces and industry, where possible;
- ii. promoting realistic water pricing, managing water demand, and treating municipal sewage (this could include support from funding programs administered by the Treasury Board Secretariat or other federal government departments); and
- iii. improving water quality in the Great Lakes and St. Lawrence River basin through lakewide management plans or other comprehensive management plans as specified in the Canada Water Act.

Environment Canada's response

- i. *Agree. The remediation of contaminated sediments is not the responsibility of Environment Canada alone, however. Specific action plans for contaminated sediment remediation initiatives will be developed and implemented where it is possible to obtain the agreement and necessary funding among the federal and provincial governments, industry and, as appropriate, the local community.*

Under the Areas of Concern Annex of the new Canada–Ontario Agreement, annual work plans will be developed that will address the identified high-priority contaminated sediments in areas of concern requiring remediation.

- ii. *Agree. Environment Canada will continue public education and outreach programs to provide information and tools that can be used by individuals and communities to promote realistic water pricing, as an instrument of water efficiency. Pricing and metering will continue to be promoted in the selection criteria for granting project funds under the Canada Infrastructure (administered by the Treasury Board Secretariat) and Federation of Canadian Municipalities Green Funds programs. Environment Canada will also support future work of the Canadian Council of Ministers of the Environment (CCME) in examining the issue of water demand and use.*
- iii. *Agree. Under the Lakewide Management Annex of the new Canada–Ontario Agreement, annual work plans based on existing funding levels will be developed. These will include point and non-point source trackdown and reduction initiatives for identified critical pollutants. Canada–U.S. biennial progress reports will be prepared for each lakewide management plan; they will include updated binational action plans.*

Improving water quality in the Great Lakes and St. Lawrence River basin requires a concerted Canada–U.S. multi-jurisdictional approach, and cannot be achieved by Environment Canada alone. Enhanced actions to improve water quality in the Great Lakes and St. Lawrence River basin are dependent on additional funding applied by all levels of government, in both Canada and the U.S.

162. Recommendation. The federal government should develop the information needed to manage fresh water, as follows:

- i. Natural Resources Canada, together with Environment Canada, should develop enough knowledge of groundwater in the basin to understand its contribution to the availability of surface water—in particular, knowledge of key aquifers, their geology, potential yields, and current withdrawals.
- ii. Environment Canada should develop enough information on the key contaminants in the Great Lakes and St. Lawrence River basin, and on their sources, to set priorities for action.

Environment Canada and National Resources Canada joint response

- i. *Agree. Natural Resources Canada (NRCan) and Environment Canada have initiated projects to improve our understanding of groundwater issues within the Great Lakes basin. Natural Resources Canada, through the Geologic Survey of Canada (GSC), has carried out groundwater research in key areas of the basin, such as the Oak Ridges Moraine, and further studies are planned. Additionally, there are plans at NRCan to inventory and delineate other regional aquifers in the Great Lakes and St. Lawrence River basin, in co-operation with provincial partners. These plans are part of the National Groundwater Strategy currently under development by the national ad hoc committee on groundwater.*

Environment Canada also conducts groundwater research through its Regions and National Water Research Institute (NWRI). This past year, the NWRI and GSC entered into a memorandum of understanding to co-operate on groundwater resources research. Groundwater is an important water supply within the basin and is also critical to aquatic ecosystems. Research conducted within the basin will address both of these functions. Effective monitoring and surveillance programs are key to good and sufficient information on the key contaminants in the water bodies.

Environment Canada's response

- ii. *Agree. Environment Canada is currently reviewing the state of its monitoring programs on a national basis, with a view to ensuring that the monitoring network is adequately designed and resourced to meet its stated goals. Great Lakes monitoring is included as part of this review. Monitoring initiatives to track down sources of identified critical pollutants will be carried out under the Lakewide Management Annex of the new COA. The need for all jurisdictions to enhance monitoring programs to provide better information on Great Lakes/St. Lawrence River key contaminants and to improve decision making and prioritization for remedial actions will be assessed in this national review.*

163. Recommendation. Health Canada should clearly articulate its responsibility for protecting human health in the basin from potential contaminants in drinking water. As part of this it should undertake, in conjunction with the Federal–Provincial–Territorial Subcommittee on Drinking Water if possible, a review of the status of drinking water quality, including its adherence to the guidelines for drinking water quality; the

public's access to information on drinking water quality; and the need for nationally enforceable drinking water standards.

Health Canada's response

Agree. Health Canada will update its existing It's Your Health fact sheet on the Drinking Water Guidelines to explain to Canadians the shared relationships and responsibilities in Canada for drinking water. Health Canada will also document its responsibilities for protecting human health from potential contaminants in waters in the basin. The Federal-Provincial-Territorial Subcommittee on Drinking Water, for which Health Canada acts as technical secretariat, has undertaken a review of drinking water quality in Canada. In addition, the Subcommittee has initiated the development of a national framework on drinking water quality, which will include issues such as the adherence of drinking water to the drinking water quality guidelines and the public's access to information on drinking water quality. Health Canada has also initiated consultation with provinces and territories, through the Subcommittee, regarding the need for nationally enforceable drinking water standards.

Agriculture

What we recommend

164. Our findings show that the federal government, with those who share responsibility, must take greater action to make agriculture environmentally sustainable in the basin. Better evaluation, clearer roles, targeted action, and clearer and measurable commitments are needed.

165. Recommendation. Agriculture and Agri-Food Canada and Environment Canada should evaluate the impact of their agri-environmental programs on the basin's environment, particularly in areas where environmental damage is increasing or progress is slow. They should use this information to re-evaluate the current mix of policies and programs, including whether activities should be more integrated with the basin ecosystem initiatives.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada acknowledges the recommendation, and will continue to evaluate the performance of its agri-environmental programs. One challenge faced is the identification and reporting of environmental impacts not directly related to departmental programs. Through its agri-environmental indicator work, Agriculture and Agri-Food Canada will continue to monitor the environmental impact of agricultural activity. Moreover, agri-environmental indicator work will assist in the development and assessment of both current and new departmental policies and programs.

Environment Canada's response

Agree. Environment Canada will improve its program interfaces with Agriculture and Agri-Food Canada, and will collaborate with it on specific initiatives aimed at better understanding and/or addressing environmental impacts resulting from agricultural activities in the basin.

166. Recommendation. Agriculture and Agri-Food Canada should ensure that clear roles and responsibilities are established, and measurable commitments and clear action plans spelled out, for achieving environmentally sustainable agriculture in the basin. It should involve Environment Canada and the provincial governments in doing this.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada is working with its provincial, territorial and other partners to establish a comprehensive agricultural policy framework that, among other priorities, will focus on environmental protection. At their meeting in Whitehorse, Yukon, on 29 June 2001, federal, provincial, and territorial ministers of Agriculture reached an agreement in principle on an Action Plan for an Agricultural Policy Framework. The action plan aims to accelerate adoption of sound environmental practices on farms and will include detail on indicators, targets, timetables, and approaches to achieving environmental protection goals. Developing and implementing this framework will involve co-ordination with environmental and health ministries. A copy of the action plan is available at www.agr.ca/cb/news/2001/n10629be.html.

Also, Agriculture and Agri-Food Canada is working with Environment Canada to establish a memorandum of understanding to clarify Agriculture and Agri-Food Canada's responsibilities in the implementing of the Canada-US Great Lakes Water Quality Agreement and the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem and delivering the objectives of the Canadian federal Great Lakes Basin 2020 program.

167. Recommendation. Agriculture and Agri-Food Canada should ensure that adequate information, including agri-environmental indicators and soil data, is available to guide action and measure progress toward sustainable agriculture in the basin.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada has established a National Agri-Environmental Health Analysis and Reporting Program (NAHARP) Working Group. Its objective is to explore the continuation of agri-environmental indicator work aimed at evaluating progress of the sector in protecting the environment and to ensure the continued provision of strategic information for policy making.

Additionally, Agriculture and Agri-Food Canada, in collaboration with its partners, will lead the development and maintenance of an Internet-based National Land and Water Information System. This initiative will provide access to information that will assist municipalities and other land users and planners in making environmentally sound land management decisions.

168. Recommendation. Agriculture and Agri-Food Canada should ensure that its research priorities correspond to its environmental objectives and support the development of its policies. It should also ensure that its environmental objectives are considered in selecting and evaluating its research.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada has established across-branch national teams. Four teams are in line with the environment priority of the Department. They include Integrated Environment Strategy Development, State of the Environment, Impact of Agriculture on the Environment, and Management and Stewardship of the Environment. Through these teams and other established mechanisms, Agriculture and Agri-Food Canada will regularly review its research activities to ensure that they contribute to the environmental objectives of the Department and support the development of its policies.

Furthermore, to ensure that departmental environmental objectives are considered in the evaluation and selection of research projects, Agriculture and Agri-Food Canada has implemented a new Study Management System (SMS). This system will assist in the assessment, approval and reporting of research projects. Through SMS each study is evaluated using a defined set of criteria, such as "attractiveness" and compliance with regulations. Attractiveness measures the likely benefit of successful research, including the potential environmental benefits; neutral or positive environmental impact; and the acceptance of the technology from social, political, and environmental perspectives. Compliance with regulations indicates if environmental assessment is required.

169. Recommendation. Agriculture and Agri-Food Canada should periodically review the environmental impacts of federal–provincial income support programs and conduct environmental assessments before putting new programs into effect.

Agriculture and Agri-Food Canada's response

Agree. In keeping with the requirements of the Farm Income Protection Act (FIPA), Agriculture and Agri-Food Canada will review the environmental impacts of federal–provincial income support programs on a periodic basis. More important, Agriculture and Agri-Food Canada's 2001 Sustainable Development Strategy, Agriculture in Harmony with Nature II, commits the Department to establishing a formal process to ensure the analysis and review of existing and new policies, programs and initiatives from the perspective of sustainable development by 31 March 2004.

As stated in the program principles outlined in the current federal–provincial Framework Agreement on Agricultural Risk Management, "... all programs under the Agreement (which includes NISA and the Canadian Farm Income Program should not be adverse to environmental stewardship." The operation of this Agreement requires an evaluation of programs by Canada and the signatory provinces. The evaluation must include an assessment against the environmental stewardship principle and be completed by March 31, 2002. Work on the evaluation of programs is currently under way.

Species and spaces at risk

What we recommend

170. Our findings show the need for better baseline information; clearer roles, commitments, and strategies; and better reporting on trends and results.

171. Recommendation. The federal government should develop better baseline information on species and spaces at risk, in the following ways:

- i. Environment Canada, Fisheries and Oceans, and Parks Canada Agency, with input from other federal landholding departments and agencies, should develop a comprehensive inventory of all species at risk under their jurisdiction, including those on federal lands in the basin. Where this information will not pose a threat to the protection of the species, they should make it publicly available.
- ii. Environment Canada should comprehensively assess the environmental state and management of national wildlife areas and migratory bird sanctuaries in the basin.

Environment Canada, Fisheries and Oceans, and Parks Canada Agency joint response

- i. *Agree. Data on species at risk are collected by federal departments, provinces, and other organizations and agencies. Environment Canada, Fisheries and Oceans, and the Parks Canada Agency will continue to work with holders of this information to develop a database of existing information on species at risk and to make this information more widely available. A more comprehensive database could be developed should additional resources become available. Where the information will not pose a threat to the species, will be made publicly available.*

Environment Canada oversees the preparation of a report entitled Wild Species 2000: General Status of Species in Canada every five years, the first of which was produced in co-operation with Fisheries and Oceans, the Parks Canada Agency, and the provinces and territories in April 2001.

Environment Canada's response

- ii. *Agree. A comprehensive assessment of the state of national wildlife areas and migratory bird sanctuaries in the basin will take time and the reallocation of resources. Environment Canada will conduct such an assessment in phases over the next five years.*

172. Recommendation. The federal government should outline responsibilities and commitments and establish strategies for species and spaces in the following ways:

- i. Environment Canada, Fisheries and Oceans, and Parks Canada Agency should ensure that recovery strategies developed for species at risk are implemented within a specified time frame. They should reassess the adequacy of funding provided for recovery actions and preventive measures, and present clear commitments consistent with the funding provided.
- ii. Fisheries and Oceans, in consultation with other parties, should clarify its role and establish clear commitments for recovery of freshwater fish species at risk.

- iii. With advice from the Federal Wetlands Forum, the federal government should identify a lead department for monitoring, evaluating, and reporting on federal actions relating to wetlands.
- iv. Environment Canada should prepare a strategy for effectively managing national wildlife areas and migratory bird sanctuaries in the basin.
- v. Environment Canada, with participation from other federal organizations, should develop a federal strategy for all federal habitat stewardship programs delivered in the basin.

Environment Canada, Fisheries and Oceans, and Parks Canada Agency joint response

- i. *Agree. Environment Canada, Fisheries and Oceans, and Parks Canada Agency have adopted a Co-operative Management Framework for implementation of the federal strategy on species at risk, including recovery actions. Regular meetings of senior officials are held to consider management strategies for species at risk initiatives. Strategic discussions of the adequacy of funding, priorities, and commitments will continue under this umbrella. Federal departments will be providing response statements regarding species at risk under their jurisdiction, which will formalize commitments regarding protection and recovery, including time frames for recovery.*

Parks Canada Agency's response

- i. *Agree. The Parks Canada Agency will work to ensure a co-ordinated approach through the development of recovery strategies that will clearly outline its responsibilities and commitments to be carried out in a specific time frame. The Parks Canada Agency, together with other federal departments, has adopted a co-operative management strategy to co-ordinate and integrate the implementation of recovery and other conservation plans, particularly with respect to habitat conservation.*
- iii. *Agree. The Parks Canada Agency will be responsible for monitoring, evaluating, and reporting on federal actions related to wetlands in national parks and will provide relevant information to the lead federal department.*
- v. *Agree. The Parks Canada Agency will participate with other federal organizations in the development of a more integrated federal strategy for federal habitat stewardship programs delivered In the basin.*

Fisheries and Oceans' response

- ii. *Agree. Fisheries and Oceans is participating actively in the development of bilateral agreements with provinces that will outline respective roles and responsibilities with respect to protection and recovery of species at risk, under the umbrella of the Canadian Endangered Species Conservation Council. These agreements will clarify roles regarding freshwater species. Discussions of freshwater fisheries strategy under the Canadian Council of Fisheries and Aquaculture Ministers will also help to clarify roles for species at risk in fresh waters. Fisheries and Oceans, in co-operation with other jurisdictions, will be issuing response statements outlining commitments for protection and recovery of species at risk, including freshwater species.*

Environment Canada's response

- iii. *Agree. Environment Canada will bring this recommendation to the Federal Wetlands Forum for advice.*
- iv. *Agree. Environment Canada will develop a strategy for the management of national wildlife areas and migratory bird sanctuaries in the Basin. However, the rate at which such a strategy will be implemented must reflect the level of resources available and the support and collaboration of landowners and other partners.*
- v. *Agree. Environment Canada will consult with other federal organizations with the objective of achieving a more integrated approach for federal habitat stewardship programs delivered in the Basin.*

173. Recommendation. To improve its reporting to Parliament and the public on the status of species and spaces at risk, the trends in their status, and the targets and results of its programs for their protection and recovery, the federal government should ensure the following:

- i. The department identified as the lead for wetlands should expand reporting on wetlands in the basin to include information on federal funding for wetlands conservation, the status of wetlands, and trends in their status.
- ii. Environment Canada should report regularly to the public on the state of national wildlife areas and migratory bird sanctuaries in the basin. Areas for reporting would include the state of their environmental health, public access and use, scientific research, and enforcement activities.
- iii. Environment Canada, with the participation of other federal departments and agencies, should produce an annual report on all federal habitat stewardship activities in the basin. The report should contain information on progress toward targets, the state of habitat and related trends, and longer-term outcomes so the net benefit of federal stewardship programs can be determined.

Environment Canada's response

- i. *Agree. Environment Canada will support expanded reporting on wetlands in the basin.*
- ii. *Agree. Environment Canada will develop a strategy for reporting on the status of national wildlife areas and migratory bird sanctuaries in the Basin. Such a strategy will take into account resource considerations. However, the rate at which this can be accomplished must reflect the level of resources available.*
- iii. *Agree. Habitat monitoring, evaluation and reporting, and the assessment of habitat conservation programs is most effective when organizations and agencies work together. Environment Canada has gained considerable experience in reporting and assessment through the North American Waterfowl Management Plan, a stewardship program for migratory birds. Environment Canada is applying this experience to recently established stewardship programs, such as the federal Habitat Stewardship Program for Species at Risk, established in 2000–01, and will report annually on results.*

Parks Canada Agency's response

- i. Agree. The Parks Canada Agency will provide the lead department with expanded reporting on wetlands within national parks.
- iii. Agree. Habitat monitoring, evaluation and reporting, and the assessment of habitat conservation programs will be most effective if federal, provincial, non-government, and other organizations and agencies work together. The Parks Canada Agency will work with partners to improve the co-ordination and integration of these activities to ensure that the net benefit of all conservation programs (stewardship and protected areas) can be determined. To the extent that additional funding is available, this approach will include reporting on the state of protected areas.

Fisheries What we recommend

174. Our audit found that Fisheries and Oceans needs to develop a vision of the aquatic ecosystem it wants to promote in the basin. It needs to define its role and responsibilities for conservation and protection of the fisheries, provide better protection against harmful invasive species, protect and manage fish habitat more effectively, and ensure that it has the scientific information it needs.

175. Recommendation. Fisheries and Oceans should take the following actions to ensure that the objectives of the *Fisheries Act* are achieved:

- i. Develop its own vision of the freshwater fisheries it wants to promote in the basin.
- ii. Clarify its role in conserving and protecting freshwater fisheries in the basin.
- iii. Establish clear commitments and adequate funding for its activities.
- iv. Develop suitable accountability arrangements with its partners—the federal departments, provinces, and others it relies on to achieve the objectives of the *Fisheries Act*.
- v. Monitor the results of its activities and those of its partners and report them to Parliament.

Fisheries and Oceans' response

- i. Agree; however, while it is essential for Fisheries and Oceans to develop its vision of freshwater fisheries for the basin, it is appropriate to work collaboratively with its federal and provincial partners. To that effect, Fisheries and Oceans is working under the auspices of the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) on a federal-provincial freshwater fisheries strategy to improve priority setting and co-ordination between federal and provincial governments in fisheries management, fish habitat protection, and freshwater fisheries science. In addition, Fisheries and Oceans shares the vision of a healthy aquatic ecosystem with the Great Lakes Fishery Commission and the International Joint Commission. Fisheries and Oceans has implemented a strengthened fish habitat protection program in the basin, and is working with the provinces to co-ordinate its delivery.

- ii. Agree. The responsibilities of Fisheries and Oceans extend to the conservation of fisheries resources and fish habitat in the basin. Provincial governments share the responsibility for the management of freshwater fisheries resources in the basin. Fisheries and Oceans ensures that its role is clearly articulated and mutually understood through the work undertaken within CCFAM and in agreements such as the Great Lakes 2020 and the Canada–Ontario Fisheries Agreement.
- iii. Agree. Fisheries and Oceans has placed a priority on identifying additional resources to devote to issues such as exotic species, ballast water, and monitoring activities as well as to the sea lamprey control program, and will do so depending on availability of funding.
- iv. Agree. Given the joint responsibility for freshwater fisheries, accountability arrangements need to be developed co-operatively with the provinces. Fisheries and Oceans will take the recommendation into consideration as we work through CCFAM, which has provided the forum to improve accountability arrangements and reporting to Canadians. With respect to the fish habitat management program in particular, Fisheries and Oceans either has, or is developing, agreements with the Province of Ontario, with conservation authorities, and with other groups. These agreements include accountability arrangements.
- v. Agree. Fisheries and Oceans will integrate the work of partners in implementing habitat management agreements into future reports to Parliament on the administration and enforcement of the provisions for fish habitat protection and pollution prevention. We will take the recommendation into consideration for reporting on other activities, as we work with our partners through CCFAM.

176. Recommendation. Fisheries and Oceans should take the following actions to ensure that fish and fish habitat are protected as required by the Fisheries Act and the Policy for the Management of Fish Habitat:

- i. Measure progress toward its ultimate objective of a net gain in fish habitat. This should include, as a first step, monitoring the effectiveness of its advice and decisions on individual projects.
- ii. Ensure that it completes the renewal of its habitat management program and apply it consistently across the basin
- iii. Clearly define the actions it requires of Environment Canada to protect fish and fish habitat effectively and carry out the Fisheries Act provisions for pollution prevention.

Fisheries and Oceans' response

- i. Agree. Fisheries and Oceans is establishing a performance management framework within its habitat management program to measure progress toward the objective of a net gain in fish habitat. Individual proponents measure the effectiveness of mitigation and conservation measures and the impacts of individual projects on fish habitat. The Department evaluates the results of such studies and makes any necessary adjustments.
- ii. Agree. Fisheries and Oceans is working with provincial government agencies, other federal departments, industry groups, non-government organizations and the Canadian public to implement its strengthened Habitat Protection Program in a consistent manner. This initiative has led to increased Fisheries

and Oceans capacity in Ontario and, to a lesser extent, in Quebec. Fisheries and Oceans is integrating the results of its review of the habitat program into ongoing operations.

- iii. Agree. Fisheries and Oceans is working with Environment Canada to increase capacity for fish habitat protection. The Memorandum of Understanding with Environment Canada that was signed in 1985 will be reviewed in the near future to further clarify the respective roles and expectations of the two departments in administering the pollution prevention provisions.

Environment Canada's response

- iii. Agree. Environment Canada will work with Fisheries and Oceans and other federal, provincial and non-government organizations and agencies to clearly define what actions are required to effectively protect fish habitat through memoranda of understanding with Fisheries and Oceans and other organizations.

177. Recommendation. Fisheries and Oceans should significantly expand its efforts in the following ways to control and prevent the introduction of invasive aquatic species and meet its stated commitments:

- i. Where feasible, develop programs to eradicate or prevent the further spread of invasive aquatic species already in the basin.
- ii. Identify the threats posed by aquatic species that could invade the basin and assess the risks they pose to the aquatic ecosystem. Where there is significant risk, it should develop action plans to respond, with other parties, to an incursion.
- iii. Conduct further research and propose alternative methods of preventing the release of invasive aquatic species in ballast water discharged by ships.
- iv. Develop, with Transport Canada's participation, proposed changes to legislation to control or prevent the introduction of invasive aquatic species. (This should be done in consultation with the United States to ensure co-ordinated action.)

Fisheries and Oceans' response

- i. Agree. Fisheries and Oceans agrees that this is a serious issue that requires further attention and the Department is currently working to identify issues such as exotic species and ballast water by leading a federal initiative to fund a ballast water control/treatment program in collaboration with Transport Canada and Environment Canada.
- ii. Agree. Fisheries and Oceans believes prevention is the best approach to controlling exotic species. Determination of significant risk will be made on the basis of scientific assessment, and funding will be sought to implement any necessary action plans.
- iii. Agree. Fisheries and Oceans is a co-author with the United States Coast Guard and Transport Canada of the last three biennial reports to the International Joint Commission on Great Lakes Water Quality, identifying exotic species as a significant risk to the Great Lakes. Fisheries and Oceans has also participated in the development of the Binational Research Strategy

and the Ballast Water Management Policy of the Aquatic Nuisance Species Task Force. Alternative methods of preventing the release of invasive aquatic species in ballast water include exchange zone areas, development of identifying and monitoring technology, and studies regarding foreign ships with no ballast on board.

- iv. Agree. Transport Canada, Fisheries and Oceans, and the United States Coast Guard convened a Ballast Water Working Group as part of the Great Lakes Waterways Management Forum to make recommendations on proposed regulatory action. Transport Canada and Fisheries and Oceans are members of the Canadian Marine Advisory Council (CMAC) National Ballast Water Working Group and act as Co-Chairs of the Great Lakes/St. Lawrence CMAC Regional Ballast Water Working Group. Both forums have addressed specific agenda items with regard to proposed regulations. In regard to regulatory action under the Canada Shipping Act, drafting instructions were provided to the Department of Justice in July 2001 for ballast water for ships entering the Great Lakes/St. Lawrence system.

Transport Canada's response

- iv. Agree.

178. Recommendation. Fisheries and Oceans should do the following to ensure that it has the scientific information it needs to carry out its mandate in the basin:

- i. Clarify its responsibilities for research.
- ii. Develop a strategy to guide its research activities and its acquisition of information from others.
- iii. Ensure that it has adequate and stable research funding commensurate with its needs for scientific information.

Fisheries and Oceans' response

- i. Agree. Fisheries and Oceans will take the recommendation into consideration while identifying priorities for research to be undertaken by Fisheries and Oceans and by the provinces through the Canadian Council of Fisheries and Aquaculture Ministers. Specific activities will be further defined by the Canada–Ontario Subsidiary Science Agreement under the Canada–Ontario Fisheries Agreement.
- ii. Agree. Fisheries and Oceans has developed documents that together serve as a strategy to address the need for scientific research and related activities. Fisheries and Oceans has mechanisms in place to co-ordinate efforts in science activities to address other high-priority issues such as species at risk, aquatic nuisance species, fisheries management in freshwater, impact of toxic contaminants, and climate change, in many cases involving U.S. federal and state governments and multi-federal, multi-provincial agencies. Fisheries and Oceans will continue to work with provinces and other sources of scientific information (universities, private sector, etc.) to ensure that such information is available and used to assess ongoing scientific activities and to set priorities for these, taking into account available funding.

- iii. *Fisheries and Oceans will continue efforts to ensure that priority science activities are adequately funded, and submissions for funding in support of new requirements will be prepared and presented as appropriate.*

179. Recommendation. Fisheries and Oceans should establish stable funding to support the Great Lakes Fishery Commission. The Department should review its past performance and determine how it can participate most effectively in the Commission's activities.

Fisheries and Oceans' response

The Department agrees that funding to support the Great Lakes Fishery Commission is important. Fisheries and Oceans already provides funding to the Great Lakes Fishery Commission for research and administration, with the primary role of facilitating control of sea lamprey by co-ordinating a program between Canada and the United States. The Great Lakes Fishery Commission also received funding from the U.S.

Ecosystem initiatives in the basin

What we recommend

180. Our findings suggest the need to provide clear and specific descriptions of federal roles, actions, and accountabilities; report better how program results contribute to improving the environment; and co-ordinate activities better across the basin.

181. Recommendation. Environment Canada, possibly in collaboration with its partners, should develop and adopt key common indicators of the state of the environment in the basin. It should also use program performance indicators to report publicly how the results of the renewed Great Lakes 2020 program and St. Lawrence Vision 2000 contribute to environmental changes.

Environment Canada's response

Agree. Since 1997, Environment Canada has worked with its federal and provincial partners in developing and implementing ecosystem health indicators to assess the state and the evolution of the Great Lakes and the St. Lawrence River environment. While these programs were put in place independently in the two regions, they do share some common indicators, recognizing that the environmental characteristics of the two sections of the basin impose limitations on the use of the same biological species or physical variables. Both the Great Lakes and the St. Lawrence initiatives aim to improve the identification and integration of the common indicators in the basin. The Great Lakes basin indicators reported through the biennial State of the Lakes Ecosystem Conference, as well as those defined in the newly developed St. Lawrence ecosystem monitoring program, will be reviewed in order to optimize their integration.

Parks Canada Agency's response

Agree. The Parks Canada Agency will work with other federal departments to clearly identify federal roles, actions, and accountabilities and to better report on how program results contribute to improving the environment. The Parks Canada Agency will continue to participate in co-ordinated activities across the basin in

support of its mandated requirements. The Parks Canada Agency will participate in the development of common indicators of the state of the environment in the basin.

182. Recommendation. Before they measure changes in the environment, Environment Canada and its partners should allocate enough permanent resources to monitor the state of the environment in the basin.

Environment Canada's response

Agree. Environment Canada is currently reviewing its monitoring programs nationally to ensure that resources dedicated to monitoring activities provide maximum return on investment, and to identify gaps in monitoring activities should they exist. Under the COA Annex on Monitoring and Information Management, the eight federal departments and three Ontario ministries will regularly review current and emerging monitoring needs in relation to existing programs, and work co-operatively to address gaps where possible.

Parks Canada Agency's response

Agree. The Parks Canada Agency is currently delivering on programs through its existing A-Base.

183. Recommendation. Environment Canada should ensure that Great Lakes 2020 and a renewed Canada–Ontario Agreement clearly identify the respective roles and responsibilities of the federal departments and provincial ministries and the resources needed to carry them out.

Environment Canada's response

Agree. In the new Canada–Ontario Agreement, the five-year commitments of the federal and provincial governments will be clearly identified. Resources are not included in this Agreement. Five-year work plans, which will be prepared for each annex and updated annually, will reflect activities of the federal and provincial governments that are resourced, including those of the federal departments falling under the Great Lakes 2020 program.

Parks Canada Agency's response

Agree. The Parks Canada Agency will work with Environment Canada to clearly identify its role in the Great Lakes 2020 program and a renewed Canada–Ontario Agreement.

184. Recommendation. In the renewed Great Lakes 2020 program, Environment Canada should report the spending of each federal partner at least every two years, and relate the spending to the results achieved.

Environment Canada's response

Agree. Environment Canada is developing a memorandum of understanding with its federal partner departments that defines the roles and responsibilities of individual departments. One of the key elements of each memorandum of understanding is reporting, and departments will be asked to commit to provide information on annual progress, achievements, and spending. This reporting will be

in accordance with formats, mechanisms, and schedules established by the Great Lakes 2020 program management committees.

Parks Canada Agency's response

Agree. Each department or agency will have to report on its own allocations, expenditures, and results as they relate to approved goals and objectives for the department or agency.

The International Joint Commission

What we recommend

185. Our findings show the need to provide the International Joint Commission with better and more timely information, follow up on the Commission's recommendations, and ensure adequate resources.

186. Recommendation. The federal government, through the Department of Foreign Affairs and International Trade and with the support of Environment Canada and all other federal departments participating in the Great Lakes ecosystem program, and other partners as required, should comprehensively review Canada's progress under the Great Lakes Water Quality Agreement and report this to the International Joint Commission as the Agreement requires.

Department of Foreign Affairs and International Trade and Environment Canada joint response

Agree. The federal government, in consultation with the United States federal government and the International Joint Commission, is currently reviewing the reporting requirements and practices under the Great Lakes Water Quality Agreement, with a view to improving linkages to the requirements of the Agreement and ensuring that Canada's water quality reporting is comprehensive.

187. Recommendation. The Department of Foreign Affairs and International Trade should establish a formal means to ensure the systematic consideration and follow-up of the Commission's recommendations.

Department of Foreign Affairs and International Trade's response

Agree. The Department of Foreign Affairs and International Trade recognizes that past procedures regarding the development of responses to Commission recommendations under the Great Lakes Water Quality Agreement have been sometimes ad hoc and informal. The Department will work with other federal departments to ensure that a more formal, transparent, timely, and co-ordinated process is established for the purpose of assessing and responding to recommendations submitted by the Commission.

188. Recommendation. Before the Department of Foreign Affairs and International Trade refers an issue to the Commission, it should ensure that the federal government can deliver the needed funds without delay.

Department of Foreign Affairs and International Trade's response

Agree. Either country may engage the International Joint Commission pursuant to the 1909 Boundary Waters Treaty to investigate and report on questions or matters of difference along the boundary. This is known as the reference function. Depending on the nature of the issue before the governments of Canada and the United States, the need to resolve these questions or differences through a reference could evolve over time or may be immediate. The Department of Foreign Affairs and International Trade agrees that when the need for a reference evolves over time, adequate funds should be allocated by the Government of Canada before proceeding with a reference. However, in instances where a prompt decision is required to initiate a reference in order to address an immediate bilateral concern, the full appropriation of funds before proceeding with a reference may not always be feasible.

Therefore, recognizing that references are an important means of addressing environmental issues in an independent and impartial manner, and recognizing that federal departments do not receive annual appropriations for undertaking references, the Department of Foreign Affairs and International Trade is assessing the nature of how Canada funds references in partnership with other departments. From this assessment, the Department will work to develop appropriate solutions to ensure that the Commission has the capacity to adequately address issues as and when they arise.

INTRODUCTION TO THE BASIN AND OUR AUDIT



INTRODUCTION TO THE BASIN AND OUR AUDIT



The basin is a major economic force for Canada . . .



. . . and supports our quality of life.

Source: Bruce Litteljohn

A unique and threatened home

1.1 To 16 million Canadians, from Thunder Bay to Quebec City, Severn Sound to Trois Rivières, the Great Lakes and St. Lawrence River basin is home. We depend on the basin's rich resources for clean air and drinking water, food and shelter, good health, employment, sport, and recreation. The basin is a natural wonder and the envy of the world, holding some 20 percent of the Earth's fresh water.

1.2 The basin is also a major economic force for Canada. Its lakes, rivers, and streams support the highest concentration of industry in the country. In 1998 the basin supplied \$11.8 billion of Canada's agricultural products, feeding not only Canadians but also people around the world.

1.3 And yet we, together with over 25 million Americans who share the basin, subject its environment to a lot of stress: industrial, municipal, and agricultural pollution of water; invasive species of plants and fish; air pollution, acid rain, and smog; the loss of valuable species and areas of biodiversity; and climate change. The health of the basin's inhabitants is subject to bacterial, viral, and parasitic diseases; toxic contaminants; and endocrine-disrupting chemicals. And the social well-being of communities in the basin is affected by beach closings, limits on fish consumption, and drinking water advisories.

Canadians ought to be concerned

1.4 **We depend on the basin's health.** Settlers were likely first attracted to this region by its pure and expansive fresh waters, vast resources of timber, and prime farmland. Today, the basin is far different. Through centuries of concentrated human activity and into the 21st century, the history of the basin is a picture of a once natural ecosystem damaged by increasing and ever-changing demands and pressures. While it still has a wealth of natural resources, it is no longer a pristine ecosystem but a complex mix of industry, agriculture, protected and recreational areas, and urban development. We have transformed the landscape, altered the natural flow of waters, and stocked the lakes and rivers. It is a hydrologic system 10,000 years in the making that we are trying to manage to our benefit and the benefit of our children and their children.

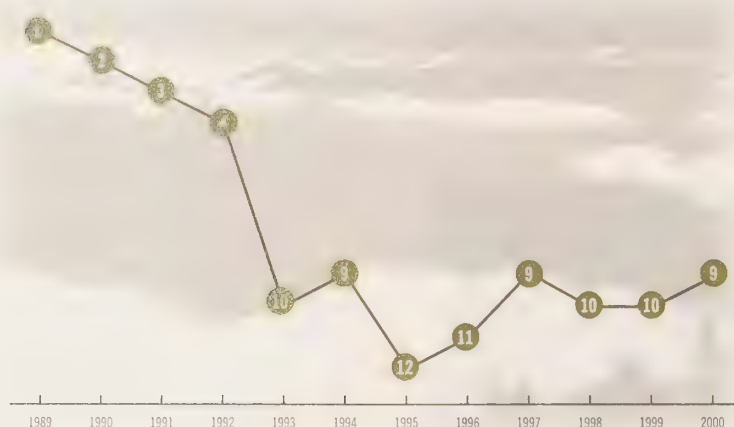
Canadians are concerned—10 years of polling

1.5 "Environment just is not a political priority anymore." We heard this repeatedly as we prepared this chapter. And yet this view did not correspond with what we saw on the ground—individuals and communities caring for

their environment in their professional and volunteer activities. So we looked at 10 years of public opinion polls to see what Canadians have said about the environment.

1.6 People care about the environment. The environment is consistently among the top 12 issues Canadians cite as important. Exhibit 1.1 shows that the environment was the top concern in 1989 but has fallen steadily since then, pushed aside by economic worries. This may lend credence to the view that the environment matters less to Canadians today.

Exhibit 1.1 Where the environment ranks in the top 12 issues confronting Canada

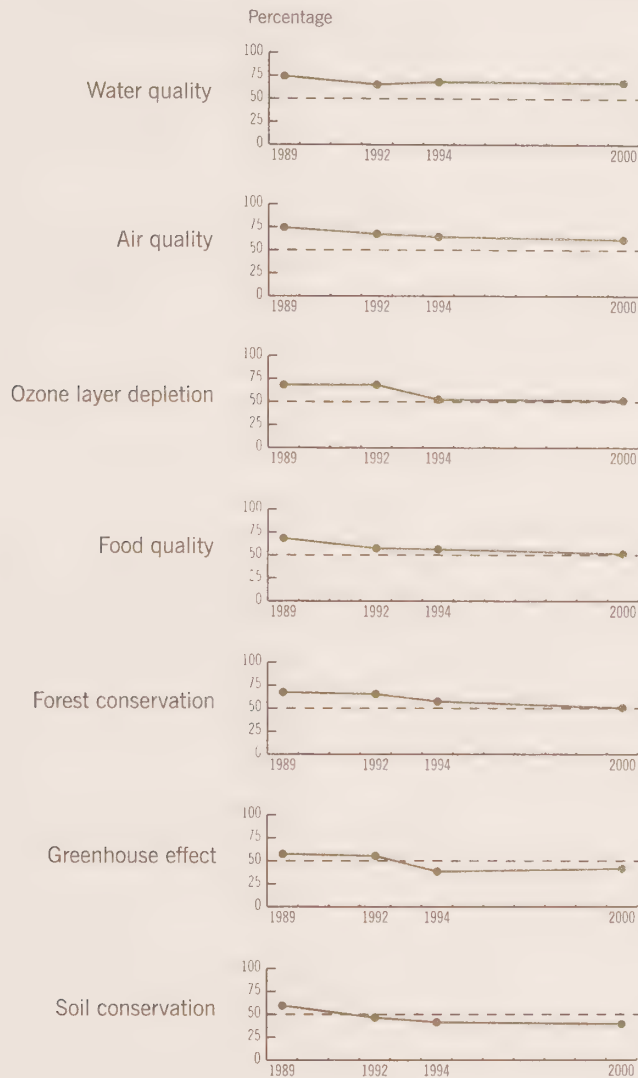


Source: IPSOS-Reid "Canadians' Public Policy Issues Agenda" 1988–2000. The question asked, Thinking of issues presently confronting Canada, which one do you feel should receive the greatest attention from Canada's leaders?

1.7 Concerns are increasing. More in-depth questioning, however, leads to different results—84 percent of Canadians say they are more concerned about the environment than they were five years ago. Exhibit 1.2 shows that since 1989, a majority of Canadians have been somewhat or very concerned about seven major issues.

1.8 Water tops the list. Water quality has topped the list of concerns since 1994. Recent polls show heightened public concern about water, endangered species, and contaminated sites. Pollsters conclude that the environment is an enduring and understated concern.

1.9 Looking to government to take responsibility. In-depth polls also reveal what Canadians expect from their governments. The polls suggest that we have moved from preferring a team effort, involving government, individuals, industry, and private groups, to wanting the government to take responsibility for protecting the environment. More than half of the Canadians polled believe that the federal and provincial governments share this responsibility.

Exhibit 1.2 Canadians are very concerned about environmental issues

Source: The Gallup Poll, 1989, 1992, 1994 and 2000.
The question asked, How concerned are you with the following environmental issues?

What our audit examined

The purpose of this audit

1.10 As federal legislative auditors, we have a mandate to report to the House of Commons “matters of significance” that we note in the way the government manages environmental and sustainable development issues. With the importance of the basin and the concerns of Canadians in mind, we conducted this audit to answer three questions:

- What is the state of the Great Lakes and St. Lawrence River basin?

- What role does the federal government play in protecting and preserving this key ecosystem, and how is it performing in that role?
- How can the federal government do better and advance the sustainable development of the basin for generations to come?

Audit objectives and criteria

1.11 In examining the role and performance of the federal government in each of the subject matters, our audit objective was to answer the following questions:

- Has the federal government fulfilled its mandate, legislative responsibilities, and other policy commitments?
- Has the government applied good management practices?
- Has the government established good governance structures?

The criteria we used to arrive at the answers are presented in Exhibit 1.3.

Exhibit 1.3 Audit objectives and criteria

Objectives	Criteria
① Has the federal government fulfilled its mandate, legislative responsibilities, and other policy commitments?	We expected that the federal government was fulfilling the responsibilities and commitments it has made in legislation, international agreements, departmental policies and plans, sustainable development strategies, and similar documents. This includes a commitment to use an ecosystem approach to managing.
② Has the government applied good management practices?	We expected that the government was using good management practices in the areas we examined. These practices include the following: <ul style="list-style-type: none"> • Understanding existing risks, emerging threats, and opportunities. • Establishing clear and consistent priorities for programming. • Translating priorities into plans that define expected results. • Evaluating and applying appropriate tools to achieve the expected results. • Obtaining and using the necessary information (environmental, social, and economic) for decision making. • Establishing indicators of progress. • Using those indicators to measure progress. • Sharing information and lessons learned.
③ Has the government established good governance structures?	We expected that the government was using appropriate institutions and mechanisms to manage the issues we examined. Specifically, we expected to find the following: <ul style="list-style-type: none"> • Credible reporting. • Effective accountability arrangements within and among departments and, where appropriate, between departments and other jurisdictions or organizations. • Adequate transparency. • Protection of the public interest.

Subject matters

1.12 Many issues have a bearing on sustainable development in the Great Lakes and St. Lawrence River basin. Over the past decade, several of them have been the subject of audits and studies by the Office of the Auditor General and the Commissioner of the Environment and Sustainable Development. They include climate change, toxic substances, smog, environmental assessment, biodiversity, and contaminated sites, among others, and are described in Appendix A. In our audits for this chapter, we focussed on four subject areas: water, agriculture, fisheries, and species at risk.

1.13 Water. Water is the dominant feature of the Great Lakes and St. Lawrence River basin. Canada has an extraordinary wealth of water resources. We have more lake area than any other country and more water per person than any other large country. Despite being one of the world's biggest users of water, we use less than two percent of the fresh water that our national watercourses renew each year.

1.14 The waters of the basin provide our drinking water, support our recreation, and drive our industries and agriculture. The lakes and rivers provide habitat for terrestrial and aquatic species alike. In the basin, industrial, municipal, and agricultural pollution affect the quality of this vital resource and affect our health and quality of life. And the interest in removing water in bulk from the Great Lakes could have serious consequences for local supplies and uses of water in the future. We must ensure that our use of it can be sustained. In this audit, we looked at the following:

- managing industrial and municipal contaminants (Subsection 3.2);
- tackling contamination in areas of concern (3.3);
- monitoring water quality for human and ecosystem health (3.4);
- managing water use and withdrawals (3.5);
- planning for good water quality (3.6); and
- the federal government's strategy for managing fresh water (3.7).

1.15 Agriculture. Agriculture in Ontario and Quebec accounts for the largest single use of land in the basin and contributes about 40 percent of the value of agricultural output in the Canadian economy. Over 100,000 farms produce a wide range of crops that help to feed the more than 16 million consumers in the region and contribute to Canada's exports.

1.16 Farming also has a substantial impact on the environment. It accounts for 5 to 20 percent of all water consumption. It causes soil erosion, water pollution, and loss of biological diversity, which affect the long-term sustainability of the watershed. Our audits examined the following:

- management of manure and fertilizer (Subsection 4.2);
- effects of soil erosion (4.3);
- environmental impacts of agricultural policies and programs (4.4); and
- practices for environmentally sustainable agriculture (4.5).

1.17 Species and spaces at risk. Plants, mammals, and fish and their habitat are important parts of the biological diversity of Canada and the basin. Protecting and recovering species at risk and practising stewardship of wildlife habitat, including wetlands, are integral to sustaining the biological diversity and environmental health of the basin. In this audit, we looked at the following:

- protecting and recovering species at risk (Subsection 5.2);
- conserving wetlands (5.3); and
- conserving habitat through stewardship (5.4).

1.18 Fisheries. People in the basin rely on fish for food, a livelihood, or recreation. Each year, the basin's lakes and rivers supply more than \$40 million in commercial fish landings and support economic activity worth over \$100 million. Recreational angling in the Canadian portion of the basin provides a further \$350 million a year in economic benefits.

1.19 The health of fish and fish populations is a barometer of the condition of the lakes. Chemical pollution in the water has contaminated the fish; consumption advisories have been issued for each of the Great Lakes and for the St. Lawrence River. The stocking of sport fish and the presence of invasive aquatic species have had enormous impacts on the ecosystem. Our audit of fisheries management examined the following:

- responding to invasive aquatic species (Subsection 6.2);
- protecting fish habitat (6.3);
- providing scientific support for fisheries decisions (6.4); and
- defining the federal role in freshwater fisheries (6.5).

1.20 Ecosystem initiatives. We also examined selected practices of the federal government in the governance and management of its regional ecosystem initiatives, St. Lawrence Vision 2000 and Great Lakes 2000 (subsections 7.2 and 7.3).

1.21 The International Joint Commission. Because of its substantial influence on federal programming in the basin, we audited the federal government's relationship with the International Joint Commission (Section 8).

Geographic coverage

1.22 The geographic scope of our audit was the freshwater system of the Great Lakes and St. Lawrence River basin, extending from Thunder Bay in the west to Quebec City in the east. We focussed largely on the Mixedwood Plains ecozone (Exhibit 1.4).

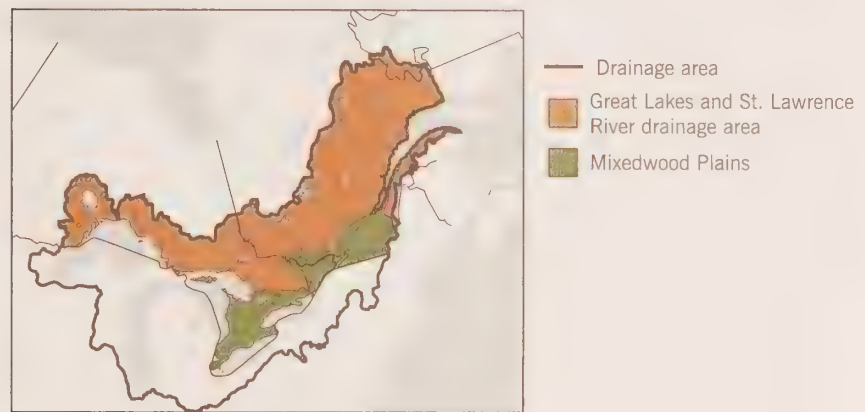
Other matters

1.23 We intended to develop a comprehensive and consolidated picture of federal spending on environmental and sustainable development issues in the basin. That proved impossible, in part because federal departments don't record their financial transactions region-wide. Where financial information

was available on a specific program or activity we audited, we have discussed it in the pertinent subject sections.

1.24 We looked at the federal government's most recent sustainable development strategies (released in February 2001) and found very few references to the Great Lakes and St. Lawrence River basin. However, the strategies do include commitments that we discuss in this chapter with the related subject matters.

Exhibit 1.4 Mixedwood Plains ecozone and Great Lakes and St. Lawrence River drainage basin



Organizational and jurisdictional setting of the basin

1.25 By any standard, the organizational, jurisdictional, and legal framework in the basin is complex. The political boundaries of this massive watershed do not correspond to the natural ones. Many levels of government are involved in managing the basin's environment and sustainable development: two federal, two provincial, eight state, and hundreds of regional and municipal governments. Our audit examined only the performance of Canada's federal government.

Two federal governments

1.26 The international border between Canada and the United States bisects all of the Great Lakes except Lake Michigan, which lies wholly in the U.S. Our neighbour to the south has a significant impact on the lakes. The United States accounts for roughly three quarters of the population around the Great Lakes, over 80 percent of its municipal water consumption, and about 90 percent of its industrial water consumption. Actions taken (and not taken) by governments in both countries affect the health of the lakes. To manage their actions and the impacts, Canada and the United States signed the Boundary Waters Treaty (1909) and the Great Lakes Water Quality Agreement (1972, 1978, 1987), and created the International Joint Commission to assist in administering both.

Separating federal and provincial jurisdictions

1.27 Canada's responsibility for protecting the basin is further complicated by the constitutional split in legislative powers. The federal and the provincial levels of government both have authority to protect the environment.

1.28 Environment. Sections 91 and 92 of the *Constitution Act*, 1867 set out the subjects for which each level of government has exclusive authority. Every statute passed by the legislature at either level must be traceable either to one or more of the subjects assigned to it or to another power set out in the Constitution. However, the Constitution does not specifically assign the environment, as such, to either the federal or the provincial level. And sustainable development had not been conceived of when the Constitution was adopted.

1.29 The federal government's powers over the environment lie in Parliament's constitutional authority over criminal law (which authorizes it to prohibit activities that harm the environment); its powers over coastal and inland fisheries, navigation, agriculture, and interprovincial and international trade and commerce; and its regulation of the activities of industries in its jurisdiction, such as aviation, international transportation and communication, and nuclear power. Parliament's authority to legislate for "peace, order and good government" may be used to deal with environmental emergencies. It can also support national measures that are beyond the provinces' capabilities—measures to control pollution, for example.

1.30 The provinces' participation is needed to carry out many of Canada's international commitments. Each province has legislative powers over the management and sale of public lands and timber; municipal institutions; the development, conservation, and management of non-renewable natural resources and forestry resources in the province; the generation and production of electrical energy; property and civil rights in the province; and generally all matters of a local or private nature in the province.

1.31 Agriculture. Both the federal and the provincial legislatures may enact laws that govern agriculture—each province, for agriculture within the province; and Parliament, for agriculture in all or any of the provinces. A province cannot pass an agricultural law that conflicts with any federal law that applies to agriculture in the province.

1.32 Exhibit 1.5 identifies the level of government—federal, provincial, or both—responsible for key environmental and sustainable development issues. Both levels share jurisdiction over most of the subjects we examined for this chapter—water, agriculture, species and spaces, and fisheries.

1.33 Authority for international matters. Parliament also has authority to act on all environmental concerns that Canada shares with the United States (however, Canada cannot use its international treaty-making powers to give itself legislative powers it does not have under the Constitution).

Exhibit 1.5 Who's in charge of which environmental and sustainable development issue**Jurisdiction**

- F** Mostly federal
FP Shared federal–provincial
P Mostly provincial

Issue	
Air	
International and transboundary pollution	F
Regulation of air emissions	FP
Agriculture	
International trade	F
Regulations	FP
Research and monitoring	FP
Programs to improve practices	FP
Standard setting	FP
Energy sources	
Interprovincial and international commerce	F
Nuclear energy	F
Hydro-electrical, oil and gas, coal, etc.	P
Environmental assessment	FP
Fiscal measures and economic tools	FP
Fish	
Conservation of freshwater fish	FP
Prevention of aquatic invasive species	F
Protection of fish habitat	F
Allocation of fishing rights	P
Research	FP
Forestry	P
Land use planning	P
Mining	P
Monitoring and protecting human health	FP
Transportation	FP
Waste management	
Domestic waste	P
Waste water	P
Biomedical waste	P
Hazardous waste	P
Interprovincial and international movements of hazardous waste	F
Contaminated sediments and sites	FP

Exhibit 1.5 (continued)

Issue	
Water	
Transboundary and international pollution	F
Transboundary rivers	F
Water exports	F
Protection of basin and river water quality	FP
Regulation of industrial effluents	FP
Regulation of municipal effluents	P
Quality of drinking water	P
Water quantity monitoring	FP
Water demand management	FP
Wildlife and habitats	
Protection of wildlife	FP
Protection of migratory birds	F
Recovery of species at risk	FP
Protection of spaces at risk	FP

The program and institutional framework

1.34 To further complicate the organizational setting, the federal, provincial, and state governments involved in the basin have a myriad of treaties, agreements, and programs that address the environment. These include the following:

- binational and international commitments;
- national agreements, between the federal and the provincial and territorial governments; and
- federal and provincial strategies, plans, and programs.

1.35 The key agreements, organizations, and programs that affect the issues we examine in this chapter are charted in Appendix B (foldout). It may be useful to note the following about the foldout:

- Some of the agreements and programs it shows apply across Canada; others apply only to the Great Lakes and St. Lawrence River basin.
- Because our audit did not include the management of air quality, forestry, and hazardous waste, the foldout presents them in less detail than the areas we did audit—water, species and habitat, fisheries, and agriculture.
- Appendix B does not show the organizations outside government that play an important role in managing environmental and sustainable development issues.

The Great Lakes Water Quality Agreement

1.36 The federal governments of Canada and the United States signed the first Great Lakes Water Quality Agreement in 1972. It remains a dominant influence on federal activities in the Great Lakes. It has been updated and amended several times, and each amendment created new obligations.

1.37 The call for “virtual elimination” of specific contaminants. Initially, the Agreement focussed on the presence of excess nutrients in the lakes. It set numerical targets for reducing phosphorous discharges into lakes Erie and Ontario. Additional research and monitoring helped to define and better describe the presence of toxic chemicals in the basin and the problem of eutrophication (when excessive plant growth and subsequent decay rob waters of oxygen, making them inhospitable to fish). As a result, objectives and targets for environmental management in the basin were refined and incorporated into a revised Agreement in 1978. The revisions shifted the emphasis of the Agreement toward a call for the “virtual elimination” of persistent toxic substances from the lakes. These substances were increasingly associated with damage to the health of fish and wildlife in the basin. The 1978 Agreement established a list of toxic chemicals for priority action. It also refined the targets for phosphorous reduction in the Great Lakes.

1.38 Moving to an ecosystem approach. The 1978 revisions broadened the goals of the Agreement from restoring and enhancing “water quality in the Great Lakes system” to restoring and maintaining the “chemical, physical and biological integrity of the waters of the Great Lakes basin ecosystem.” This shifted the focus of the Agreement from protecting the lakes to protecting the ecosystem. The Agreement also specified a commitment to undertake surveillance and monitoring in order to assess compliance with the Agreement’s objectives, evaluate trends in water quality, and identify emerging problems.

1.39 Areas of concern. The Agreement was amended again in 1987 to require remedial action in heavily degraded locations or “areas of concern” around the lakes. The International Joint Commission and the Canadian and U.S. federal governments, the Ontario government, and state governments in the U.S. identified 43 geographic areas of concern to which the Agreement applied; 17 of them are on the Canadian side of the lakes, 5 of which are shared with the United States along connecting rivers.

1.40 Lakewide management plans. The 1987 amendments also mandated the development and implementation of lakewide management plans. These were intended to, among other things, broaden the scope of planning by identifying more comprehensively the sources of contaminants entering the lakes, and activities that could affect the quality of the water and the integrity of the ecosystem.

1.41 The 1987 amendments revised existing annexes to the Agreement and committed Canada and the U.S. to do the following:

- control pollution from non-point sources (pollution that does not originate from a single source); and
- identify the nature and extent of sediment pollution, and develop methods to evaluate the impact of contaminated sediments and the technological capabilities of programs to clean them up.

The specific requirements of the 1987 amendments are summarized in the Agreement's 17 annexes.

The federal government's presence in the basin

1.42 Today, the federal presence in the basin takes many forms. There are national policies and department-wide programs that are applied regionally. Examples are the Federal Water Policy, the National Fish Habitat Policy, scientific research and monitoring, stewardship of species, and agricultural income support programs. The efforts of the federal and provincial governments are co-ordinated through the Canada–Ontario Agreement and the Canada–Quebec Agreement. And there are regionally based ecosystem initiatives: the Great Lakes 2000 program and the St. Lawrence Vision 2000 partnership. Some national policies are delivered through the ecosystem initiatives; others are not. The ecosystem initiatives share many similarities but also have important differences.

1.43 In recent years there have been significant changes in the way our society frames environmental issues, what people and institutions expect of governments, and how governments have responded in their policies, approaches, and institutions. Our work has given us a new appreciation of the challenges facing the federal government.

- **A crowded and shifting environmental agenda.** Governments are grappling with hundreds of interconnected issues and threats, most of them crossing traditional political boundaries. A focus in the past on easily observed, acute stresses from single substances has been replaced by attention to subtle, chronic, and long-term stresses from many substances. And a focus on local issues has given way to global concerns.
- **Coping with multiple expectations.** Thousands of individuals and organizations attempt to influence the direction of government policy and support in the basin. On occasion, their views converge. But more often than not, stakeholders want significantly different approaches to solving problems.
- **Multiple priorities.** Environmental protection is not the only demand on government: deficit reduction, economic growth, alternative service delivery, social union, government on-line, and other government priorities also vie for the attention of scarce resources.
- **A shift to volunteerism and prevention.** Governments are under pressure from industry and other stakeholders to shift from regulatory “command and control” to a broad array of approaches, including

voluntary actions and economic incentives. Governments themselves recognize the need to shift from the old “react and cure” to “anticipate and prevent.”

- **Public involvement and transparency.** There is a “consultation ethic” at play within the federal government—departments are directed to consult with the public and stakeholders as policies are developed. Increasingly, though, the public is seeking greater participation in ongoing decision-making, setting of priorities, and co-management of solutions. The public demands that information be transparent and accessible.
- **Partnerships and effective public accountability.** There is also a “partnership ethic” in the government—governments and the public alike promote the idea of partnership to achieve environmental objectives. But the increased use of partnerships has created other concerns and has prompted ongoing demands from stakeholders—and our Office—for clear definition of roles, specific commitments, effective accountability, and open and honest reporting.

Our focus is on the federal government

1.44 The discussion of each subject area in this chapter briefly outlines the main federal and provincial responsibilities in that area. However, while it is clear that both levels of government share responsibility for the health of the basin and its occupants, we direct our comments solely to the federal government and the way it discharges the responsibilities described in federal laws, programs, and policies.

Using this chapter

1.45 This chapter addresses three questions.

1.46 What is the state of the Great Lakes and St. Lawrence River basin? We present three different perspectives: historical, science-based, and international (Section 2).

1.47 What role does the federal government play in protecting and preserving this key ecosystem, and how is it performing in that role? We begin our detailed audit reports on each subject with an overview of the issues, the federal role and mandate, what we audited, what we found, and what we recommend (sections 3 to 8).

1.48 How can the federal government do better and advance the sustainable development of the basin for generations to come? We summarize our key observations and conclusions and discuss their implications. We conclude with a short list of ideas on how the federal government could do a better job of advancing sustainable development in the basin (Section 9).

THE STATE OF THE BASIN



THE STATE OF THE BASIN



Source: Bruce Litteljohn

2.1 What is the state of the Great Lakes and St. Lawrence River basin? There is no single answer to this question; it can be answered from many viewpoints. We have chosen three: historical, science-based, and international.

2.2 Historical perspective. While a snapshot would give a useful look at the basin, it would be a limited view. Time-lapse photography would give us a better understanding of its state. Looking back at the basin over the past 100 years, we see how dramatically it has changed as a result of our growing presence. This suggests not that we need to return to a simpler time or a more pristine wilderness but that we need to learn from our past.

2.3 Science-based perspective. Scientists in both Canada and the United States are working to understand the state of the basin. We have summarized their latest efforts and findings.

2.4 International perspective. The St. Lawrence River and Great Lakes basin is one of the most famous freshwater resources in the world. One of the most infamous is the Aral Sea. What can we learn from the environmental disaster there?

A brief history of the basin

A constantly growing population

2.5 As the 20th century began, the population of Quebec was 1.5 million; Ontario's was about 2.2 million. In both provinces the population had increased almost fivefold by 1996, to over 7.1 million in Quebec and 10.7 million in Ontario.

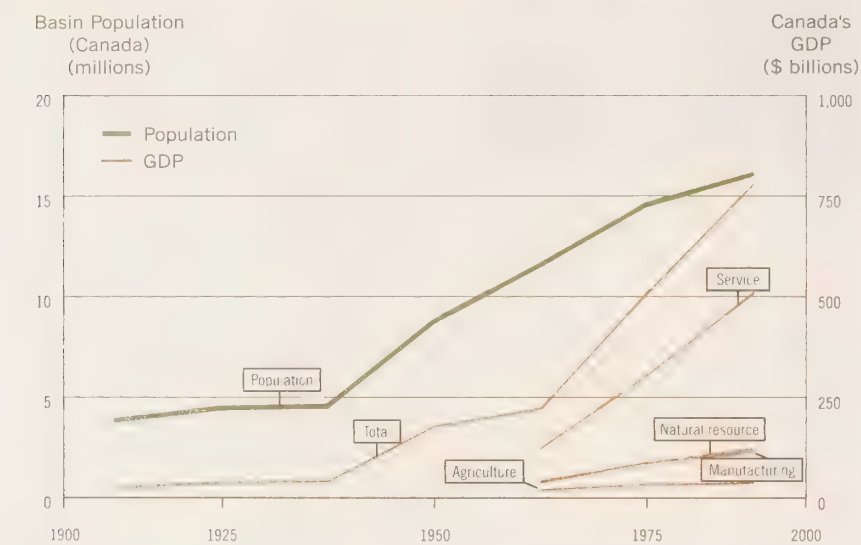
2.6 Not only has the size of the population changed significantly but so has its location. The mainly rural population of the 19th century began to shift to one increasingly concentrated in urban centres. The growth of Quebec's population continued mainly along the banks of the St. Lawrence River, and almost six million of the province's inhabitants—more than 80 percent—lined its shores by the mid-1990s. In Ontario, over nine million people—close to 90 percent of the population—live around the Great Lakes.

Fuelling the industrial engine

2.7 As the population has grown, so has the level of economic activity (Exhibit 2.1). The resource-rich basin has increasingly been tapped for the raw materials the economy needs. The lakes, rivers, and tributaries of the basin have provided cheap, plentiful power to fuel industrial growth. In 1891, mining, agriculture, forestry, and fishing employed almost half of the Canadian workforce. Yet industrial plants, benefiting from access to cheap power and proximity to the U.S. manufacturing belt, needed more and more labourers. Windsor became a site of many industries; car manufacturing began there in 1904. Steel production and metal finishing were concentrated

along the shores of lakes Erie and Ontario. By 1911, Toronto had become the leading industrial centre of Ontario. In the northwest, along Lake Superior, mining was developing. Beginning in the late 1800s, the railway opened up communities like Port Arthur and Fort William (now joined as Thunder Bay) that would become major centres for developing natural resources.

Exhibit 2.1 Economic activity in Canada and the population in the basin continue to increase



Source: Statistics Canada

2.8 The St. Lawrence River saw many large companies established to exploit natural resources. In the late 1800s, on tributaries of the St. Lawrence, forestry was shifting from sawmills to pulp and paper mills located near hydroelectric power sources. Later, access to cheap, abundant energy, and the ability to move imported bauxite up the St. Lawrence and Saguenay rivers, led to the construction of aluminium smelters. New communities in Quebec sprang up around major resource developments. Industry prospered and expanded from the timber trade to mining, agricultural processing, textiles, and hydroelectric power.

2.9 **The development of new technologies.** The 1950s ushered in the chemical age. Technology developed largely to support the war effort was now applied to manufacturing for consumer products. Hamilton became a centre of steel production, with a capacity of over 2.7 million tonnes. New plastics and petrochemicals were developed that heralded economic prosperity and an improved quality of life for the basin's inhabitants. There was a promise of nuclear power "too cheap to meter."

2.10 The fast pace of development and the manufacture of chemicals went hand-in-hand with activity in the petroleum sector. Refineries were springing up along the waterway in Sarnia, Windsor, Hamilton, and Montreal. The refineries converted Canadian and U.S. crude oil into fuels to meet the growing demand for energy. They also produced the raw materials for the chemical industry, which required the same access to shipping, water, and

abundant power. PCBs, synthetic fertilizers, and pesticides such as DDT were now manufactured along with thousands of other chemicals and products.

2.11 A diverse mix of pollutants. By the 1970s, the basin had developed a diverse economy with a strong emphasis on chemical, automotive, and natural resource industries. This diversity was reflected in the pollutants released into the environment. Practices of the mining and steel industries were tied to the release of poly-aromatic hydrocarbons and heavy metals such as mercury, lead, and arsenic. Dioxins and furans were associated most notably with incinerators. Pulp and paper mills were sources of dioxins, furans, and other organochlorines. PCBs were linked to the chemical industry in transformers and hydraulic oil. Organic residues, nutritive elements of all kinds, and a wide range of toxic substances were disposed of directly into the water and air of the basin.

2.12 Industry reduces its environmental impact. In contrast to the 1960s and 1970s, economic growth in the last 20 years has been achieved concurrent with improvements in the environmental health of the basin. Total emissions of substances targeted voluntarily by the chemical manufacturing sector decreased from 1,092 tonnes in 1988 to 324 tonnes in 2000. As levels of phosphorus have declined, so has eutrophication (excessive plant growth and subsequent decay that robs waters of oxygen). Levels of persistent toxic chemicals present in the tissues of fish and wildlife have shown a downward trend, although they levelled off somewhat in the mid-1990s and some chemicals now show a slight increase.

2.13 Regulation, voluntary measures, and the availability of chemicals that are less toxic have all contributed to improvement. Pulp and paper discharges to the lakes and the St. Lawrence have been reduced, along with discharges of solid waste per person by Ontario municipalities. Quebec has seen an increase in tonnes of waste per person in the past decade.

Some of the richest agricultural land

2.14 Agriculture has always been an important part of the basin's economy, providing food for the growing population. The area of southern Ontario and Quebec along the waterway is among the richest farmland in Canada. This portion of the basin, referred to as the Mixedwood Plains ecozone, was already highly cultivated by the turn of the 20th century. Farming was labour-intensive; tractors and other heavy equipment were not readily available. Combined harvests on small mixed farms were gradually replacing the predominant wheat crop. By 1921, Ontario and Quebec had some 335,000 farms with an average size of 120 hectares. More than 90,000 hectares were in corn, and the farms were also raising some 4 million cattle, 2 million pigs, and 21 million chickens.

2.15 The impact of agriculture grows. As the population grew, so did the demand for food. This meant increasing the productivity of farmland and transporting food from elsewhere. Technology was the principal factor in raising crop yields. Mechanization, concentration, specialization, and the use of pesticides and chemical fertilizers were becoming commonplace in Ontario

and Quebec. Nitrogen-based fertilizer was applied to Canadian farms at a rate of 11 tonnes per thousand hectares in 1931; by 1961 it had increased to 38 tonnes. By 1951 there were 19 tractors and combines per thousand hectares in Canada, compared with just 5 in 1931. The number of agricultural workers averaged 13 per thousand hectares, fewer than half the number in 1901.

2.16 By 1970, Ontario led all provinces in the use of herbicide, at 47 percent of Canada's total. In addition to the fertilizers and manure linked to eutrophication, pesticides were now a concern. DDT was linked to the thinning of bird eggshells and the dwindling of eagle and peregrine falcon populations in the basin.

2.17 New crops such as hybrid corn led farmers in Ontario to convert permanent pasture and scrubland into cropland. The move to specialized crops continued, with more emphasis on fruit production in southern Ontario. In Quebec, the wheat crop was replaced by hay and later by mixed farming, field crops, and dairy production. Pasteurization and new refrigeration techniques allowed Quebec's dairy industry to expand. Agriculture went from an artisan activity to an industry.

2.18 Agriculture today. As a highly dynamic, global player, today's agriculture industry puts significant pressure on the soil and water of the basin. The use of commercial fertilizer increased significantly from the late 1960s, peaked in 1985, and has since declined. The amount of pesticide used also peaked in the 1980s, although in 1998 more than 5,000 tonnes of active ingredient were still applied in Ontario alone. New crop varieties have shorter growing seasons and higher yields, and have shifted the emphasis of crop production. We now share the basin with some 4 million cattle, 6 million pigs, and over 60 million hens and chickens; together, they generate manure equivalent to the sewage from some 100 million people.

Waters once teeming with fish

2.19 Commercial fishing in the Great Lakes, which began in the 1820s, peaked in the 1890s at a catch of about 140 million pounds. But there were already signs that stocks were being depleted. One of the most notable

A walk through the basin

The basin today is a complex mix of natural beauty and human activity.



Lake Superior



Pulp mill near
Thunder Bay



North Channel,
Lake Huron near Blind River

casualties was the Atlantic salmon; by 1900, one of its largest populations in the world had disappeared from Lake Ontario and its tributaries.

2.20 Growing catches of fish, declining stocks. Commercial fishing remained viable during the first half of the 20th century, but by the mid-1950s the golden era of the fishery was over. Modern equipment, higher productivity, and the diversity of species available helped to maintain fish landings at the same levels. Refrigerated holds and warehouses helped improve the quality of fish products going to market. The Great Lakes catch increased from 35 million to 50 million pounds between 1920 and 1960. But the large, high-value species were all but gone; the harvest yielded larger volumes of smaller, less valuable species.

2.21 Fish stocks were declining as a result of intensive commercial fishing, disruptions to habitat, and the impact of the sea lamprey. From 1945 to 1988, about 16,000 hectares of aquatic environment between Cornwall and Île au Coudre were affected by dredging of the shipping channel, backfilling, draining of land along the riverbanks, and construction of harbour and hydroelectric facilities. All of this jeopardized the habitat of lake sturgeon, American shad, Atlantic tomcod, Atlantic sturgeon, and American eel, among others. The formerly prolific striped bass disappeared.

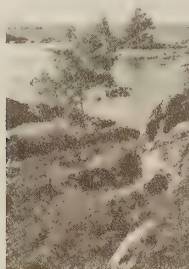
2.22 A fishery in flux. While Lake Erie contains only two percent of the total volume of water in the Great Lakes, it has the highest productive capacity for fish and yields close to 80 percent of the commercial catch. The Lake Ontario fishery is surviving, thanks to the active stocking of some populations and natural recovery helped by the control of sea lamprey. Commercial fisheries remain viable in a few locations, but they are much smaller than they were. The recreational fishing industry generates over \$350 million each year. Yet consumption advisories warn of unsafe contamination levels in fish caught throughout the basin.

Impacts on the landscape

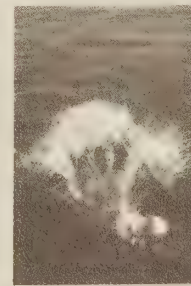
2.23 Throughout the 20th century, the list of concerns in the basin grew significantly longer, and many long-standing concerns continue today (Exhibit 2.2).



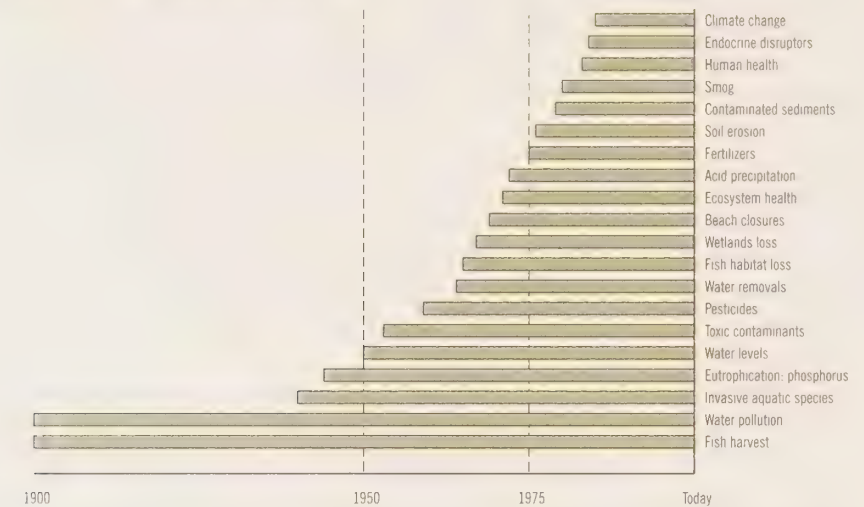
Fishing camp



The shores of
Georgian Bay



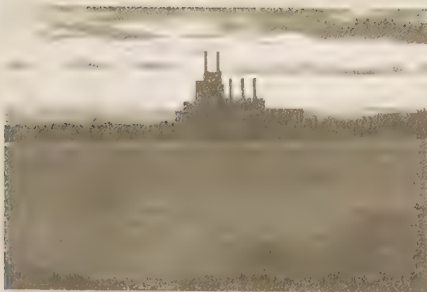
Swimming in cottage
country

Exhibit 2.2 Basin concerns through time

Source: Adapted from Lake Erie: A Changing Ecosystem, SOLEC 2000 Presentation, Environment Canada

2.24 Even early in the last century, signs of stress on the landscape were emerging. Rivers and lakes were affected by the loss of shoreline vegetation, the trampling of stream banks, and the disruption of fish spawning habitats—all consequences of natural resources development. Logging had begun to exhaust the forests of the Mixedwood Plains, disrupting wildlife habitat. Only 25 percent of the forest cover remained, largely in woodlots and remnant stands. The loss of forests to agriculture contributed to soil erosion and fluctuations in local water supplies. The draining of marshes to create additional cropland began a long trend of wetland loss.

2.25 **Disappearing wetlands—key sources of life.** By 1982, 61 percent of Great Lakes wetlands had been lost. The loss was mostly in southern Ontario, due to agricultural and urban development, drainage, and pollution. Wetlands in Quebec were facing similar threats and several other problems, including riverbank erosion from shipping, and flooding from hydroelectric power generation. The considerable stress on the St. Lawrence River wetlands led to their biological deterioration and dramatically reduced their surface area.



Chemical valley near Sarnia



Fishing boats at Port Dover



Marsh grass at Rondeau Provincial Park

2.26 Opening the St. Lawrence Seaway. One of the most significant events in the history of the basin was the construction and development of the St. Lawrence Seaway, begun in 1954. Efforts had been made since the early 1800s to connect portions of the waterway. The Seaway was completed with a final series of locks, canals, dams, and control structures and was inaugurated in 1959. It profoundly altered shorelines, riverbeds, and fish and wildlife habitats.

2.27 Navigating the waterway successfully is a delicate operation. From 1978 to 1988, 15 maritime accidents in the St. Lawrence alone resulted in oil spills, two of them major spills. In the same period, the Canadian Coast Guard recorded 307 accidental spills of pollutants (largely petroleum products) from vessels on the St. Lawrence, mostly in ports. Navigation is becoming more problematic as water levels lower. In the 2000 shipping season, some water levels were close to a metre lower than normal, challenging navigation all along the Seaway. Lower water levels mean that ships have to lighten their loads in order to navigate safely. This cost the shipping industry an estimated US\$1.2 million a week in 1998.

2.28 The proliferation of non-native species. Numerous non-native or invasive species of plants and fish have found their way into the basin. Some, such as tree species and crops, were introduced intentionally; others came uninvited in contaminated seed, ship ballasts, foodstuffs, and clothing. From 1930 to 1959, 33 new invasive species established themselves in the Great Lakes and the St. Lawrence River and had a tremendous impact on the economy. Sea lamprey, established earlier in the century, have caused millions of dollars of damage to the commercial fishery. Today, close to 160 invasive species have been identified in the Great Lakes.

Pollution of the waters

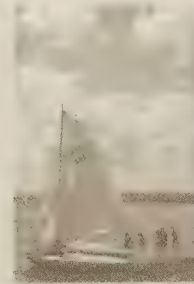
2.29 The growth in industry and population and the resulting pollution have been most apparent in lakes Ontario and Erie. Well into the 20th century, the basin was used for direct disposal of raw sewage, discharged into the lakes. Added to this was waste from industrial activity throughout the basin. In the early 1900s, heavy metals were a major source of contaminants entering the waters. Mercury and lead were prominent in waste streams from



Southern Ontario's urban sprawl



Sewage lagoon near Toronto



Sailing near
Presqu'île

mining and pulp and paper operations. Lead contamination in Lake Ontario almost tripled between 1880 and 1920.

2.30 Next came inorganic and synthetic fertilizers that, with industrial waste and untreated sewage, degraded the quality of drinking water and fish habitat. From 1940 to 1960, PCBs in the sediments of Lake Ontario increased 275 percent due to direct disposal of industrial chemicals into the waterway. Concentrations of DDT increased more than fivefold in the same period, largely in runoff from farms.

2.31 Phosphorus—a major problem. In the 1950s and 1960s, Lake Erie experienced massive algal blooms, oxygen depletion, and fish kills. By the 1970s, the Great Lakes epitomized North American environmental degradation.

2.32 It was the severe and visible degradation of Lake Erie that most aroused public concern and prompted a review of the lower lakes in 1964 by the International Joint Commission. Studies in Canada and the U.S. said the key problem was eutrophication. Untreated sewage, still a big problem, was joined by phosphorous from detergents and runoff from fertilizers and manure—all heightened by growing urban development and farming practices in the basin.

The impacts on human health

2.33 Impact on drinking water. For municipalities and industries, the waterway had often appeared to be a convenient and effective means of diluting and removing wastes. However, waterborne diseases were passed to the public in drinking water, and several major cholera and typhus epidemics swept through Toronto in the mid-1800s. These were the first signs that improper disposal of sewage could lead to public health disasters. In 1910, as the public health threat in Lake Ontario became evident, Toronto built its first sewage treatment facility.

2.34 Most domestic wastewater was dumped, untreated, directly into the waters of the basin—the same waters from which municipalities drew their drinking water. Efforts to introduce wastewater treatment to Quebec municipalities along the St. Lawrence River were slow. Ontario, though, led



Tour boat in the Thousand Islands
near Kingston



St. Lawrence Seaway at Montreal



Research vessel

many provinces in treating its wastewater. By the 1970s, most Ontario municipalities discharging effluent to the lakes had developed basic sewage treatment.

2.35 Every day, 3.2 million Canadians use about 360 litres of water each from the St. Lawrence River. Today, 78 percent of the wastewater their households generate is treated either partially or fully before being returned to the river. Improvements in sewage control and pollution management have made it safer to swim in the river.

2.36 However, a significant amount of waste is still dumped directly into the St. Lawrence. In 1992, 140 municipalities generated about 500 million litres of waste per day. A 1991 study sponsored by Health Canada concluded that about 35 percent of reported gastrointestinal illness among Montreal's tap water drinkers was water-related and preventable. Health Canada estimates that health care related to water pollution costs about \$300 million a year.

2.37 Impact of chemical discharges. By the late 1960s and 1970s, inhabitants of the basin were in for a rude awakening. The harmful effects of disposing of industrial waste were not yet understood; there had been little concern about dumping these effluents into the Great Lakes and the St. Lawrence River. However, signs of early development defects in bird populations around the Great Lakes raised an alarm. It was soon clear that the entire food chain contained a variety of toxic substances that accumulated at unacceptable levels in the tissues of some fish and wildlife.

2.38 In 1971, abnormally high levels of mercury were found in the flesh of fish in the St. Lawrence River. Commercial fishing was restricted in most of the area between the Ontario border and Île Verte, Quebec. The first sport fishing advisory was issued in 1971, and Ontario began to issue a biannual guide to safe fishing; these guides contained consumption advisories. The restrictions were the result of contamination by PCBs, mirex, and dioxins.

2.39 Fishing, swimming, and drinking water were all affected by pollution. Sewage is the most common cause of beach closings in the basin. In 1971, 19 beaches between Montreal and Lac Saint-Pierre were the subject of bacterial analysis. Of all the beaches in question, only one near Berthierville was considered suitable for swimming (the water there contained less than



Logs near
Trois Rivières



Farm stream in Quebec



Quebec City

Source: Bruce Litteljohn

1,000 *E. coli* per 100 millilitres; the other beaches had levels above this safety threshold).

2.40 Today, more than 360 chemicals have been identified in the water, sediment, and wildlife of the basin. Roughly a third of these chemicals can have acute or chronic toxic effects. People are exposed to toxins mainly in fish they eat, and to a lesser extent in drinking water.

2.41 There has been a modest increase in the number of fish advisories issued for some sport fish species in all lakes since 1993. Consumption advisories target in particular Aboriginal people, minorities, sport anglers, the elderly, pregnant women, and nursing mothers.

Governments begin to react

2.42 Throughout the 20th century, governments responded to concerns in the basin. The end of the 19th century had seen a move toward a federal forestry policy and the creation of the first forest reserves at both the federal and provincial levels to deal with the effects of deforestation.

2.43 Acting on concerns about the wasteful and destructive use of resources and the problems caused by urbanization, the federal government created the Commission of Conservation in 1909. The Commission based its intervention in the use of rivers on three principles:

- the right of each Canadian to pure, unpolluted water;
- control of the commercial use of river resources to ensure that one type of use did not prejudice others; and
- preservation of the rivers' natural resources for future users.

2.44 Also in 1909, Great Britain (on Canada's behalf) and the United States signed the Boundary Waters Treaty, which established the principles and mechanisms to help resolve disputes over waters along the boundary between the two countries. The Treaty's articles focussed on navigation, water flow, unimpeded movement, and the use of lake water. Only one short sentence in the Treaty noted that each country agreed to not pollute the waters to the injury of the other's health or property. Still, this was a groundbreaking prohibition that would later form the basis for much government action on water quality. The Treaty also led to the creation of the International Joint Commission, a binational organization that supports Canada and the U.S. in their management of the water resources they share. The treaty gave the Commission three responsibilities for boundary waters, including the Great Lakes:

- approve applications to use, obstruct, or divert boundary waters on either side of the border in ways that would affect the natural level or flow on either side;
- investigate and provide advice on transboundary issues referred to it by the two national governments; and
- arbitrate any disputes between the two governments over boundary waters.

2.45 Responding to invasive species. In the 1950s, governments in Canada and the U.S. were particularly concerned about the impacts of invasive aquatic species on commercial fishing. The sea lamprey was considered one of the main culprits, and for good reason: it was a highly effective predator and was decimating the large fish populations of the Great Lakes as it moved west. As a result, the Great Lakes Fishery Commission was established in 1955 to advise on fishing issues and to control the sea lamprey. The lamprey population has been reduced 90 percent by the selective use of chemicals to kill the larvae in streams. The Great Lakes Fishery Commission also investigated other ways to control the population and begin to restore the fishery.

2.46 Governments address water quality concerns. A stream of new information flowed throughout the 1960s, 1970s and early 1980s, and not much of it was good news. The emphasis of the early 1970s on eutrophication soon turned to a focus on persistent organic pollutants that were showing up in wildlife. Safeguarding the environment thus became an increasing concern of the federal, provincial, and municipal governments.

2.47 While the International Joint Commission had begun studies of water quality in the 1910s, it was its third major study of pollution in the basin, begun in 1964, that would be the catalyst for action. The study findings formed the basis of the 1972 Great Lakes Water Quality Agreement between the U.S. and Canada. A revised Great Lakes Water Quality Agreement was signed in 1978, calling for an end to the discharge of persistent toxic chemicals.

2.48 The federal government has worked with the Province of Ontario since the first Canada–Ontario Agreement in 1971, the prelude to Canada’s Great Lakes Water Quality Agreement with the United States in 1972.

2.49 The federal programming efforts in the Great Lakes were brought together under the Great Lakes Program launched in 1989. The program is entering its third phase, and the Canada–Ontario Agreement (which expired in 2000) is currently being renegotiated.

2.50 In Quebec, the St. Lawrence Vision partnership between the provincial government and the federal government began in 1988 to address the health of the St. Lawrence River basin’s ecosystem. This partnership is currently in its third phase.

2.51 By the end of the 1970s, a range of activity by governments—legislation, regulations, monitoring, enforcement, and industrial partnerships, among others—had reduced the levels of contaminants in the lakes and rivers. For example, phosphate levels in Lake Ontario dropped 38 percent between 1970 and 1980.

2.52 The *Canada Water Act* of 1985 was an attempt to enshrine in law the comprehensive management of the water resource; however, its constitutional validity was not universally accepted. In 1987 the federal government published its Federal Water Policy to protect and enhance

freshwater resources. The policy includes a commitment to prevent the bulk removal of water from Canada.

2.53 Broader federal initiatives affect the basin. A number of nationwide federal initiatives also affect the health of the basin.

2.54 When Canada signed the Convention on Biological Diversity in 1992, it agreed to address the impact of foreign species on Canada's ecosystems. The federal government also began to promote farming practices, including soil management practices, that have fewer negative impacts on the environment.

2.55 The first attempt to legislate the protection of endangered species was in October 1996. In February 2001, a revised version of this legislation was introduced in Parliament.

2.56 Government responses continue to evolve. The federal government has directed considerable activity to problems in the Great Lakes and St. Lawrence River basin. Today the basin is the focus of myriad committees, programs, treaties, agreements, and institutions. There are remedial action plans, lakewide management plans, ecosystem approaches, and sustainable development strategies. All of these seek to improve the health of the basin and its inhabitants.

What have we learned?

2.57 We began this historical journey to answer the question, What is the state of the basin? As we have seen, the basin has changed considerably over the past 100 years. According to the International Joint Commission in its Ninth Biennial report, "The Great Lakes environment has improved dramatically over the past quarter-century." This is evident in pollution abatement, the emergence of more sustainable agricultural practices, recovery of some species, and efforts to protect wetlands and vital remaining habitats.

2.58 We have also seen more types and a changing mix of industrial, agricultural, and other human activities, with consequences both anticipated and unanticipated. And while we have seen their impacts on the basin multiply, we have also seen some issues persist over time. Others that we thought were being managed effectively appear to be recurring.

2.59 Local conditions—a growing population, continued urban and industrial growth, current agricultural practices, and increasing recreational demands—continue to pose a significant challenge to the health of the basin. So do global influences, such as climate change and long-range transport of air pollution.

2.60 It is important to note that the successes of the last 30 years were hard won, through targeted and sustained attention. They were based on a significant scientific capacity that grew out of the environmental awareness of the 1970s. That scientific capacity will continue to be needed as new issues emerge such as climate change and endocrine disruptors (chemicals that may

have an adverse effect on human and ecological health by disrupting normal hormonal systems) and as urban development and technological advances continue to change the face of the basin.

Scientific assessment of the state of the basin

2.61 In 1992, the State of the Lakes Ecosystem Conferences (SOLEC) were established by the governments of Canada and the United States to provide a forum for exchanging information on the ecological condition of the Great Lakes ecosystem. While there is no comparable mechanism for reporting on the state of the St. Lawrence River, a number of indicators have been reported in the past. A new set of state-of-the-river indicators was developed in 2000 for future reporting.

2.62 SOLEC is a science-based reporting forum. It is the main forum for government decision-makers to exchange scientific information on the state of the lakes and the stresses on them. It does not focus on government programs or their achievements.

2.63 In 1996, those involved in SOLEC saw the need to develop a comprehensive, basin-wide set of indicators that would allow both Canada and the U.S. to report on their progress in maintaining and improving the quality of the lakes. They proposed 80 indicators. Progress measured by 19 of these indicators was reported at the Conference in 1998. One of the conclusions was, "Given the incomplete nature of the information available for the 80 indicators, the Parties cannot provide a detailed quantitative assessment of the State of the Lakes."

2.64 At SOLEC 2000, the state of the lakes as measured by 33 of the indicators was reported, using five qualitative ratings: poor, mixed deteriorating, mixed, mixed improving, and good. The state of the St. Lawrence River and lakes Superior, Michigan, Huron, and Ontario was found to be "mixed." Lake Erie was considered "mixed deteriorating." Overall, while drinking water was rated "good," and fish consumption advisories and swimming advisories "mixed improving," many indicators raised concerns about the state of the Great Lakes and St. Lawrence River basin (exhibits 2.3 and 2.4).

An international perspective

Many watersheds are threatened

2.65 While the Great Lakes and the St. Lawrence River are unique resources, many of the threats and challenges they face are encountered throughout the world. These include jurisdictional conflicts; population pressures; physical alteration of inland water systems; habitat degradation; excessive water withdrawal (especially for agriculture); pollution from industrial, municipal, and agricultural sources; mismanagement of fisheries; introduction of non-native species; and the loss of freshwater biodiversity.

2.66 From the Rhine River and the Baltic Sea in Europe to Lake Victoria and Lake Chad in Africa, from the Rio Grande in North America to the Aral Sea in Central Asia, human activity is leaving its footprint. Some of the problems in these other watersheds are more serious than those in the Great Lakes and St. Lawrence River basin (Exhibit 2.5). Many are expected to get worse—not better—over time.

Exhibit 2.3 State of the Great Lakes—rated by indicator

← decreasing ♦ steady
 → increasing ? unknown

	Indicator	Poor	Mixed deteriorating	Mixed	Mixed improving	Good
COASTAL WETLANDS	Amphibians		←	♦		
	Snapping turtles					
	Bird diversity and abundance		←			
	Area by type		←			
	Effects of water levels		←			
HUMAN HEALTH	Air quality			♦		
	Swimming advisories				→	
	Drinking water					♦
	Fish consumption advisories				→	
LAND	Alvars			♦		
	Hardened shoreline		←			
	Bald eagles				→	
	Urban density			?		
	Brownfields					♦
	Mass transit			?		
	Sustainable agriculture			♦		
OPEN AND NEARSHORE WATERS	Walleye			♦		
	Hexagenia				→	
	Preyfish			♦		
	Sea lamprey			♦		
	Lake trout				→	
	Scud		←			
	DELT (Lake Erie)	♦				
	Phytoplankton			?		
	Phosphorous concentration / loads			♦		
	Contaminants in water birds					♦
	Zooplankton			?		
	Atmospheric deposition				→	
	Toxic chemicals in offshore waters			♦		
SOCIETAL UNBOUNDED	Acid rain			♦		
	Non-native species (aquatic)		←			
	Water use			?		
	Economic prosperity			♦		

Source: SOLEC Indicator, Issue Number 1

The Aral Sea—an extreme example of mismanagement

2.67 The Aral Sea is perhaps the most graphic example of the serious impacts that mismanagement and poor planning can have on a water body. In the 1960s, the Aral Sea was the world's fourth-largest inland body of water. By 1995, it had lost 75 percent of its water volume and its surface area had shrunk by half. Water levels had fallen by 19 metres, 33 square kilometres of its sea bed had been exposed, and 94 percent of the flow from its main tributaries no longer reached it (Exhibit 2.6).

2.68 The consequences have been enormous. More than 36,000 square miles have been turned into salt flats and desert. Two million hectares of fertile land have been lost to agriculture due to secondary salinity. Dust storms carry toxic salts and afflict three quarters of the region's 3.5 million people with serious illnesses. The Sea's salinity levels have tripled, and 20 of its 24 fish species have disappeared. The fish catch, which once weighed 40,000 tonnes and supported 60,000 jobs, is now non-existent. Drinking water is in short supply, due to contamination by toxics and salt. The damage is considered irreparable. Efforts are under way to see if a portion of the Aral Sea can be saved, but it may be too late.

Exhibit 2.4 State of the St. Lawrence River—rated by indicator

Indicator	<div>↔ mixed ➡ increasing ♦ stable ? unknown</div>		
	Deteriorating	Mixed	Improving
Sediment quality			➡
Water quality (river)			➡
Water quality (tributaries)			➡
Biodiversity		?	
Natural spaces and protected species		?	
State of biological resources		↔	
Marine transportation		↔	
Modification of bottom and hydrodynamics		?	➡
Modification of shorelines			
Urban waste water emissions			➡
Industry waste water emissions			➡
Commercial fisheries		↔	
Recreational hunting and fishing		♦	
Access to shoreline and river		?	
Human health		?	

Most of the data are for the period ending in 1996 or 1995.

Source: L'État du Saint-Laurent, rapport technique, Mise à jour des indicateurs environnementaux, SLV 2000

Exhibit 2.5 Problems in watersheds around the world**Exhibit 2.6 Damage to the Aral Sea**

In the 1960s, the Aral Sea was the world's fourth largest inland body of water. By 1995, it had lost 75 percent of its water volume and its surface area had shrunk by half.

The basin in 2020: Looking to the future

2.69 Looking a generation ahead, the Canadian population surrounding the basin is predicted to grow by 20 percent—some three million people. Gross domestic product in Ontario and Quebec is expected to be 60 percent higher than today.

2.70 This growth will increase the demands on the basin's drinking water, land, fish, agricultural products, sewage treatment facilities, parks and wilderness areas, transportation services, housing, energy, and infrastructure (such as roads, bridges, and communication networks). And we will see a corresponding increase in waste generated, natural resources used up, and energy consumed. The basin our children will inherit will be quite different from today's basin.

Section 3

WATER

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WATER

3.1 Overview and Recommendations



Source: Bruce Litteljohn

3.1.1 Throughout Canada and around the world, the quality and availability of water are central to our environment, our livelihoods, and our quality of life. Why should Canadians be concerned about water? There are plenty of reasons:

- Less than half of Canada's fresh water is available for use. Sixty percent of our fresh water flows north toward the Arctic, while 90 percent of us live in a narrow band along Canada's southern border.
- Industry, agriculture, and people use a lot of water, and their activities can seriously affect water quality. Each day, Canadians consume twice as much water per person as the average European.
- Many substances find their way into the waters of the basin and then into our food and water. Some of these become more concentrated and toxic over time.
- Regional population growth, climate change, and large-scale removals of water for export could jeopardize the availability of renewable fresh water for future generations.

These issues are important for all Canadians, especially those living in the world's largest freshwater basin—the Great Lakes and St. Lawrence River basin.

3.1.2 The quality of drinking water in the basin is one of the chief environmental concerns of people living there. Chemicals, phosphorous, and other pollutants have been contaminating the Great Lakes and the St. Lawrence River since the early 1900s. Some are released directly into watercourses from industrial and municipal sources; some are from non-point sources (no single point of entry) such as farmland, and some are from faraway sources, deposited through the air. Many of these contaminants can accumulate in sediments and later can become suspended again in the water.

3.1.3 Fresh water is becoming one of the world's most sought-after resources. Although the Great Lakes have an abundant supply of fresh water, it is not an infinite supply. In the past, and today, there have been a variety of proposals to remove or divert water from the basin. The demand for water is also growing in the basin itself. The availability and the management of fresh water are becoming one of the greatest environmental, social, and political challenges of the 21st century.

3.1.4 The federal government needs a variety of scientific information to carry out its responsibilities. This includes information on water quality—such as the presence of and trends in contaminants in open waters and drinking water. It also includes information on water quantity—such as surface flows, water levels, and groundwater.

The federal role and mandate

3.1.5 At least nine pieces of federal legislation establish a host of responsibilities for the federal management of fresh water. A number of agreements, policies, and programs further articulate those responsibilities.

3.1.6 Six federal departments play an active role in the government's commitment to a safe and secure water supply in the basin. Environment Canada, as the lead, is the most active. Other departments are Fisheries and Oceans, Health Canada, Natural Resources Canada, Agriculture and Agri-Food Canada, and Foreign Affairs and International Trade. These departments have a large collective commitment to the basin.

3.1.7 Under the *Canada Water Act*, the Minister of the Environment can enter agreements with provincial governments to restore and protect water bodies of national interest. The Act also authorizes the Minister to undertake research and collect data to develop comprehensive management plans for nationally significant waters, in co-operation with provinces that have an interest in those waters. If agreement cannot be reached with the provinces, the Act requires the Minister to develop and carry out those plans without them for federal, interjurisdictional, and international or boundary waters.

3.1.8 Provisions of the *Fisheries Act* prohibit the discharge of harmful substances into waters used by fish. The *Canadian Environmental Protection Act*, administered by Environment Canada and Health Canada, mandates the federal government to protect the environment and human health from the use and release of toxic substances, pollutants, and wastes. Health Canada is responsible for protecting Canadians against risks to health and the spread of disease by water, among other things. It plays a key role in developing guidelines for the quality of drinking water.

3.1.9 International treaties such as the Great Lakes Water Quality Agreement between Canada and the U.S. establish specific obligations, as do the federal government's agreements with Quebec and Ontario and its own Great Lakes and St. Lawrence River ecosystem initiatives.

3.1.10 The federal government adopted the Federal Water Policy in 1987. Its objective is to encourage the efficient and equitable use of fresh water in a way that can meet the social, economic, and environmental needs of present and future generations. The policy establishes goals and strategies for water management, and a series of commitments. A commitment to realistic water pricing—charging the real value of the resource and its delivery—has been a long-standing feature of the federal position.

What we audited

3.1.11 We looked at how well the federal government has met its commitments and applied good management practices and whether it has established good governance structures. Specifically, we looked at federal efforts to reduce water contamination by industrial and municipal effluents and to clean up contaminated sediment (Subsection 3.2), particularly in 17 areas of concern around the Great Lakes (Subsection 3.3).

3.1.12 We examined the federal government's role in safeguarding drinking water (Subsection 3.4) and its performance in monitoring surface water and

the quantity of groundwater in aquifers. We also looked at what it is doing to curb large-scale withdrawals of water for export and at its activities to encourage more efficient use of water by Canadians (Subsection 3.5).

3.1.13 We then assessed the federal government's performance at a broader level. How has it planned for its activities in the watersheds of the basin (Subsection 3.6)? How does it set priorities for fresh water and how has it carried out its 1987 Federal Water Policy (Subsection 3.7)?

What we found

3.1.14 Overall. The federal government and its partners have been active in the basin for several decades, with some positive results. Federal and provincial regulations to curb toxic emissions from industry, investments in sewage treatment plants, and actions to prevent the bulk removal of water from the basin are all examples of actions that have made a difference. But the job is far from complete: recent trends show that some aspects of water quality in the basin may be deteriorating.

3.1.15 With this in mind, our overarching concern is the ambiguity of federal commitments. We often saw federal departments doing things without having clearly articulated what they wanted to achieve. Cleaning contaminated sediment, getting areas of concern delisted, promoting realistic water pricing, and protecting public health by ensuring that people know when it may not be safe to drink the water or eat the fish—all are areas where the federal commitment is unclear. Indeed, federal departments often define their role as supporting the priorities of others rather than their own.

3.1.16 The government does not have some of the basic information it needs to develop priorities and action plans. For example, it has no overall picture of the many contaminants in the basin or the contribution of groundwater to the basin. Consequently, it is involved in many remedial actions with no way to determine which are the most important and what they will contribute.

3.1.17 Contaminants. Ongoing federal commitment and action over the past 30 years to ensure that industry reduces its contamination of the basin have helped to improve water quality throughout the basin.

3.1.18 Effluents from municipalities, however, remain a serious source of contamination. Municipal systems that are not properly designed to treat the range of substances found in effluents allow them to flow into our waters without adequate treatment. After 30 years of improvements, 40 percent of municipal effluents of the cities we considered continue to receive only primary treatment. This progress may not be sufficient to realize the federal government's objectives.

3.1.19 The federal government's approach to effluents from municipal treatment plants and outfalls has been strikingly different from its approach to industrial effluents. It has not used its regulatory powers, but instead has focussed on providing financial support to municipalities. Environment Canada has been working with the provinces recently to develop a national strategy on municipal wastewater effluents.

3.1.20 Contaminated sediment. Contaminated sediment is the legacy of years of government inaction while industrial plants and municipalities released high volumes of untreated or poorly treated effluents directly into the basin's lakes, rivers, and streams. It has been present in all areas of concern and at dozens of sites along the St. Lawrence River. The federal government has conducted studies of contaminated sediment and has assisted in the cleanup of some sites. However, it has neither clear commitments nor a long-term game plan for remediating contaminated sediments. Many sites still await action.

3.1.21 Areas of concern. In 1985, the International Joint Commission and the Canadian and U.S. federal governments, the Ontario government, and some state governments in the U.S. identified 42 geographic areas of concern along the shores of the Great Lakes; another was added to the list in 1991. These were areas that were severely degraded. Twelve were in Ontario, and five others along connecting rivers were shared by Canada and the U.S. The federal government has been active in setting up structures for action in areas of concern. It has generally managed its cleanup fund well in assisting projects in areas of concern, although a clearer rationale is needed for financing actions in the future.

3.1.22 Of the 17 areas of concern identified in Canada in 1985, 16 are still on the list. The federal government has not decided what it wants most to accomplish in areas of concern. It is not clear how or when it plans to restore the remaining areas of concern and see them delisted. The federal government needs to provide greater leadership and support—setting priorities, clearly linking proposed actions to criteria for delisting, and brokering co-ordinated action by other governments and organizations.

3.1.23 Drinking water. Generally, the state of Canada's drinking water is considered good, but recent events have shaken the public's confidence. Drinking water is primarily a provincial responsibility. Since 1968, Health Canada has played a key role in the development of drinking water quality guidelines to protect Canadians' health. But it does not know the quality of drinking water across the country or whether the provinces are applying the guidelines.

3.1.24 Monitoring and planning for water quality. Environment Canada is meeting its basic obligations to monitor water for the presence of contaminants listed in the Great Lakes Water Quality Agreement. The federal government's understanding of changes in water quality, however, is based on a limited number of substances that are known to be harmful to human health. Many substances are not monitored at all.

3.1.25 The federal government, with its partners, needs to do much more to understand the risks to water quality in the Great Lakes and the St. Lawrence River and to focus its efforts more effectively. The presence of critical contaminants is generally known, but not always their sources. Almost 14 years after the federal commitment to develop lakewide management plans, most of them are still in their early stages of development. The plans that do exist for the basin tend to be weak. It is not evident when the plans

will be completed or whether the government will use them for strategic direction of its own and others' actions to restore the Great Lakes.

3.1.26 Bulk water removal. The bulk export or diversion of water is a major concern of Canadians. The federal government has taken steps to carry out a strategy on bulk removals of water, in collaboration with the provinces. But we note that the government took more than a decade to take action after its 1987 policy commitment. The strategy was not yet complete by the end of our audit, and it is not clear whether it will be enough to prevent large-scale exports of Canada's fresh water.

3.1.27 Groundwater. Groundwater aquifers are the prime source of drinking water for 28 percent of Ontario and Quebec residents. In 1987, noting that knowledge of groundwater in the basin was incomplete, the federal government committed to improving its understanding of groundwater aquifers. However, it has gained little understanding of groundwater in the basin since then. Its knowledge has remained fragmented and incomplete.

3.1.28 The Federal Water Policy. In 1987 the federal government released its water policy. But the policy was set adrift because funds and specific departmental responsibilities were not allocated. It became unclear which of the five strategies or 25 policy statements and related activities in the water policy were still priorities. Through the years, the government has lacked a consistent and clear strategy for updating the Federal Water Policy. The timetable for updating the policy and the associated departmental roles and responsibilities, whether as part of a national strategy or not, is unclear.

3.1.29 Its 1987 Federal Water Policy committed the federal government to promoting and applying realistic pricing and user pay principles. The federal government has not effectively implemented its policy to reduce domestic consumption of water through demand management and realistic pricing. The design of its funding programs does not specifically encourage water pricing as stated in its water policy.

What we recommend

3.1.30 Our findings show that the federal government needs to decide its priorities for fresh water and clarify its commitments to achieving them. Working with its partners, it needs to develop realistic, scheduled plans with clear accountability; stick to its plans; and provide open and transparent information on results.

3.1.31 Environment Canada should reassess its role and clearly articulate its responsibilities and commitments for freshwater management in the Great Lakes and St. Lawrence River basin, and clarify the commitments expected from other federal departments, especially but not limited to the following:

- completing the actions needed for delisting areas of concern;
- remediating contaminated sediment in areas of concern and elsewhere in the basin where it is a significant environmental concern;
- developing lakewide management plans for the Great Lakes; and
- promoting the concept of "a fair value for water" as stated in the Federal Water Policy.

3.1.32 Environment Canada, enlisting the participation of others where possible, should develop clear action plans to carry out its commitments for management of fresh water. It should develop initiatives to implement these plans, especially for the following:

- remediating contaminated sediment, with the provinces and industry, where possible;
- promoting realistic water pricing, managing water demand, and treating municipal sewage (this could include support from funding programs administered by the Treasury Board Secretariat or other federal departments); and
- improving water quality in the Great Lakes and St. Lawrence River basin through lakewide management plans or other comprehensive management plans, as specified in the *Canada Water Act*.

3.1.33 The federal government should develop the information needed to manage fresh water, as follows:

- Natural Resources Canada, together with Environment Canada, should develop enough knowledge of groundwater in the basin to understand its contribution to the availability of surface water—in particular, knowledge of key aquifers, their geology, potential yields, and current withdrawals.
- Environment Canada should develop enough information on the key contaminants in the Great Lakes and St. Lawrence River basin, and on their sources to set priorities for action.

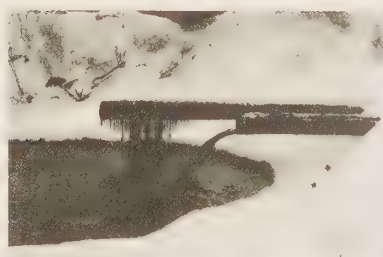
3.1.34 Health Canada should clearly articulate its responsibility for protecting human health in the basin from potential contaminants in drinking water. As part of this it should undertake, in conjunction with the Federal–Provincial–Territorial Subcommittee on Drinking Water if possible, a review of the status of drinking water quality, including its adherence to the guidelines for drinking water quality; the public's access to information on drinking water quality; and the need for nationally enforceable drinking water standards.

(See Summary for departmental responses.)

3.2 Contaminants: Out of the Pipe and Into Our Water

The issue

3.2.1 Chemicals, phosphorous, and other pollutants have been contaminating the Great Lakes and St. Lawrence River basin since the early 1900s. Many of these contaminants are released directly into our watercourses. Industrial effluents and municipal sewage, discharged into the Great Lakes and the St. Lawrence River, accumulate and persist throughout the basin. They also contaminate nearby sediment that can later become suspended again in the water.



Industrial effluents and municipal sewage accumulate and persist throughout the basin.

Source: U.S. Environmental Protection Agency

The federal role

3.2.2 The federal government shares responsibility for restoring and protecting the basin's ecosystem, including human health. For more than 20 years it has focussed on reducing pollution in the basin, and it has committed to help clean up industrial and municipal effluents and contaminated sediment.

3.2.3 Provincial governments play a major role, given their responsibility for regulating industry. They are also responsible for setting municipal effluent guidelines and standards. Ontario and Quebec have made it a priority to reduce point-source pollutants (those with a single, known point of discharge). Responsibility for regulating some industries is shared between the federal and provincial governments.

Our audit questions

3.2.4 What are the federal commitments to reducing point-source pollutants and the sediment these pollutants contaminate? What has the government done? How effective has it been?

The story

Federal actions have helped to reduce industrial effluents

3.2.5 The *Canadian Environmental Protection Act* and the *Fisheries Act* give the federal government the power to require reductions in releases of toxic or harmful substances. The Great Lakes Water Quality Agreement, the Great Lakes 2000 program, and the Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem committed the federal government to addressing the quality of water in the Great Lakes, particularly in 17 areas of concern in Ontario. In 14 of these areas, a main cause of water contamination is industrial discharges. In Quebec, the St. Lawrence Vision

Did you know?

- Amount industry has spent to improve environmental performance in the basin: **at least \$1.5 billion**
- Percentage reduction of dioxin in Lake Superior from 1990 to 1999: **95**
- Percentage reduction of 1,2,4 trichlorobenzene in the St. Lawrence River from 1991 to 1995: **73**
- Percentage reduction of phenanthrene in Lake Ontario from 1988 to 1993: **between 92 and 98**

2000 program committed the federal and provincial governments to work together to reduce industrial effluents.

3.2.6 We examined the progress reported by 54 industrial facilities identified as priorities in remedial action plans for the 17 areas of concern in Ontario. We also examined reports by St. Lawrence Vision 2000 on the progress of 86 industrial facilities in Quebec that the program had identified as priorities in its first two phases. We examined company information from Great Lakes 2000 and St. Lawrence Vision 2000, the data reported to the federal government under the National Pollutant Release Inventory, and changes in water quality identified by Environment Canada.

3.2.7 The federal and provincial governments regulate many toxic substances in the main industrial sectors along the basin. In the early 1990s, for example, both levels of government introduced regulations in the pulp and paper industry to control emissions. The industry has reduced its releases into water of dioxins and furans, two highly toxic substances, by over 90 percent. Other industries have also reduced their emissions of substances listed as toxic by the *Canadian Environmental Protection Act* and by regulations of Ontario and Quebec. Large industrial facilities generally treat the chemicals in their wastewater before it is released into watercourses. The federal government monitors the presence of dozens of these industrial pollutants in the Great Lakes and the St. Lawrence River and has seen a consistent reduction in their concentrations throughout the basin.

3.2.8 Industry has made a significant investment in cleaner plants throughout the basin. Fifty out of 140 companies in our analysis have reported investing a total of at least \$1.5 billion over the past decade in more environmentally friendly plants and industrial processes, partly to comply with more stringent regulations (see case study, Improving environmental performance). The federal government, under the Great Lakes 2000 Cleanup Fund, has invested about \$700,000 in Ontario's industrial sector (excluding contaminated sediment); its Community Interaction program in Quebec has not funded any industrial improvement projects. The federal government has introduced, and increasingly relies on, voluntary measures and sector agreements to reduce toxic emissions. Previous audits by this Office and by Environment Canada have raised concerns about the effectiveness of such measures and agreements.

3.2.9 Ongoing federal commitment and action over the past 30 years to ensure that industry reduces its contamination of the basin have helped to improve water quality throughout the basin.

Treating municipal sewage—still a long way to go

3.2.10 Significant amounts of contaminants come from municipal sewage treatment plants. Treating sewage plant effluents is primarily the responsibility of provincial governments and their municipalities.

3.2.11 On average, almost seven and a half million cubic metres of wastewater from 60 of the largest municipalities in Quebec and Ontario flow directly into the basin every day. This wastewater includes both sewage and waste from

Improving environmental performance

Regulations affect the pulp and paper mill industry

Bowater Inc. (formerly Avenor Inc.) operates a pulp and paper mill in Thunder Bay, Ontario. The mill discharges effluents into the Kaministiquia River directly upstream of the Westford turning basin. Until 1990, Bowater was one of the key sources of water pollution in the Thunder Bay Area of Concern.

Pulp and paper regulations introduced by the federal and Ontario governments in the early 1990s were a key reason for the mill's action on surface water emissions. The company reports that it spent over \$69 million in the past 10 years to make a number of improvements at the mill. These included the following:

1990—Construction of a secondary treatment plant (phase I) for the treatment of kraft mill effluent.

1994—Conversion of kraft mill to elemental chlorine-free bleaching.

1995—Construction of a secondary treatment plant (phase II).

1998—ISO 14001 certification of its environmental management system.

These changes considerably improved the mill's discharges to surface water over the past 10 years. For example, in 1990 it discharged about nine parts per quadrillion of dioxins and seven parts per quadrillion of furans a day. Discharges of both are now below detectable levels, representing a reduction of over 90 percent each.

thousands of small industrial facilities that use city treatment facilities. In some cases, the water flows directly into the waterways without treatment. Even if it is treated, not all sewage treatment plants are equally effective. Generally, plants with only primary treatment leave biological and chemical impurities that flow into the watercourse. Secondary treatment will generally remove the biological impurities but will do little to the chemicals that flow into the sewer system. Tertiary treatment tends to remove most types of impurities and can return the water to close to its original condition.

3.2.12 Our audit examined the reports of municipal treatment plants of 40 cities in Ontario and 20 in Quebec. The cities have populations over 48,000 and sewage effluents that drain directly or indirectly into the Great Lakes or the St. Lawrence River. We looked at federal contributions to improve municipal infrastructure in these cities.

3.2.13 The federal Great Lakes 2000 Cleanup Fund and grants from the Canada Infrastructure Works Program have contributed to improving sewage treatment. For example, in areas of concern the Cleanup Fund has contributed more than \$6.5 million toward studies and pilot projects to optimize the efficiency of sewage treatment plants and minimize the environmental impacts of their effluents.

3.2.14 The federal, provincial, and municipal governments shared the costs of the Canada Infrastructure Works Program. The program was used for initiatives such as improving roads, building community centres, and improving municipal sewage treatment plants. It did not have criteria for specific environmental objectives such as improving sewage treatment plants to meet tertiary treatment standards. Through this program, the federal

*Did you know?***Ontario**

- Amount of sewage, in cubic metres, generated each day by 40 cities in the basin with populations larger than 48,000: **4.2 million**
- Amount the federal government contributed in infrastructure grants to sewage projects in 23 cities: **over \$31 million**
- Amount provincial and municipal governments contributed in infrastructure grants to the same projects: **over \$106 million**
- Percentage of sewage at each treatment level in 1999–2000:
 - **primary 6.5**
 - **secondary 24.5**
 - **tertiary 68.9**

Quebec

- Amount of sewage, in cubic metres, generated each day by 20 cities in the basin with populations larger than 48,000: **3.3 million**
- Amount the federal government contributed in infrastructure grants to sewage projects in 8 cities: **over \$26 million**
- Amount provincial and municipal governments contributed in infrastructure grants to the same projects: **over \$56 million**
- Percentage of sewage at each treatment level in 1999–2000:
 - **primary 82.4**
 - **secondary 17.6**
 - **tertiary 0**

government contributed over \$31 million between 1994 and 1999 to sewage projects in 23 of the 40 Ontario cities in our audit. In Quebec, the Canada Infrastructure Works Program provided over \$26 million to upgrade sewage projects in 8 of the 20 Quebec cities we looked at.

3.2.15 After the federal government signed the first Great Lakes Water Quality Agreement in 1972, many Ontario municipalities began to improve their sewage treatment plants. As a result, over 68 percent of the sewage from the largest Ontario municipalities receives tertiary treatment. Quebec municipalities started more than a decade later, and more than 80 percent of the sewage from the largest municipalities receives only primary treatment.

3.2.16 After 30 years of improvements, 40 percent of municipal effluent of the cities we considered still gets only primary treatment. This progress may not be sufficient to realize the federal government's objectives. Many small and medium-sized businesses empty their effluents directly into municipal systems. Municipal systems that are not properly designed to treat the contaminants in those effluents allow them to flow into our streams, rivers, and lakes without adequate treatment.

3.2.17 The federal government's approach to effluents from municipal treatment plants and outfalls has been strikingly different from its approach to industrial effluents. It has not used its regulatory powers, but instead has focussed on providing financial support to municipalities. Environment Canada has been working with the provinces recently to develop a national strategy on municipal wastewater effluents.

Commitments to clean contaminated sediment are unclear

3.2.18 Contaminated sediment is the legacy of years of government inaction while industrial plants and municipalities released high volumes of untreated or poorly treated effluents directly into the basin's lakes, rivers, and streams. Contaminated sediment has been present in all the Ontario areas of concern and at dozens of sites along the St. Lawrence River in Quebec. Contaminants such as mercury and dioxin accumulate in some sediments and are picked up by various organisms. Some of these contaminants become more concentrated and their effects magnified as they move up the food chain, making some types of fish unsafe to eat. Contaminated sediments also greatly restrict the uses of the nearby shoreline. Moreover, as they are stirred up and become suspended again in water, they may release low levels of toxic substances that affect the basin's water quality.

3.2.19 The estimated costs of removing and cleaning the contaminated sediment in the Canadian areas of concern range from tens of millions to several billion dollars. The costs aside, there are scientific and technical questions about how to dig up the contaminated sediment and what to do with it once it has been raised. Some have argued for natural recovery, suggesting that, left alone, over many years the contaminated sediment will be buried under new, cleaner sediment. Others argue that this would leave a permanent legacy of sites unusable for recreational development such as marinas or beaches.

Did you know?

Ontario

- Number of areas of concern where contaminated sediment was identified: **17**
- Number of areas of concern that still have contaminated sediment: **15**
- Number of areas of concern where Environment Canada is focussing on contaminated sediment: **6**
- Amount spent under Great Lakes 2000 Cleanup Fund to address contaminated sediment: **\$18.5 million**
- Environment Canada's 1994 estimate of the amount of contaminated sediment, in cubic metres: **over 450,000**
- Amount of contaminated sediment remediated, in cubic metres: **over 60,000**

Quebec

- Number of sites identified with contaminated sediment in 1989–90: **40**
- Number of sites identified as priorities in 1993: **16**
- Amount spent under St. Lawrence Vision 2000 to address contaminated sediment: **\$1.3 million**
- Amount of contaminated sediment in the St. Lawrence basin: **unknown**
- Amount of contaminated sediment remediated: **unknown**

3.2.20 There is no doubt that dealing with the legacy of contaminated sediment is complex, and the federal responsibility for cleaning it up is not clear. Under the Great Lakes Water Quality Agreement, the federal government committed to ensuring that remedial action plans for areas of concern, all of which had contaminated sediment, would be developed and implemented. What about contaminated sediment that is outside areas of concern? What is the federal role there, when industry and municipalities do not accept responsibility for cleaning the sediment and liability for the contamination cannot be established? Without answers to these questions, it is not clear to Canadians what the federal government is committed to achieving.

3.2.21 Some areas of concern are getting attention. Environment Canada has completed research to identify the characteristics of contaminated sediment in six areas of concern—the St. Lawrence River at Cornwall, Hamilton Harbour, St. Clair River, Detroit River, Toronto, and Marathon in the Peninsula Harbour. In some of those six, it plans to clean up the contaminated sediment and is preparing strategies to remediate the sites. It has carried out a number of pilot projects at Hamilton Harbour over the years. Environment Canada has also developed and demonstrated innovative technologies for cleaning contaminated sediment, and it maintains a database on that work. To date, the federal government has spent more than \$8 million in Ontario from its Great Lakes 2000 Cleanup Fund on sediment studies, technology assessments, and related work.

3.2.22 At least \$10 million from the Cleanup Fund has been spent on pilot remediation projects and actual remediation of sediment. At least four areas of concern have had some sediment removed: Collingwood Harbour, Thunder Bay, the Niagara River, and Toronto. The federal government will have contributed over \$5 million to assess and remediate sediment contamination at the Northern Wood Preservers Inc. site in Thunder Bay by the time that work is completed (see case study, The importance of committed partnerships). It is conferring with industry on the St. Lawrence River in Cornwall and at Hamilton Harbour to agree on what should be done about the contaminated sediment there.

3.2.23 Overall, little of the contaminated sediment in the areas of concern or elsewhere in the Great Lakes has been removed or otherwise remediated. Environment Canada identified priority sites in 1993, based on levels of contamination, but its action depended on partnerships, sources of contamination, technical feasibility, and other factors. Environment Canada has not developed plans that identify for each of the sites what needs to be done, who will do it, what its own role will be, or how to share the costs of abating and controlling the contamination of sediment.

3.2.24 The St. Lawrence River awaits action. Environment Canada has studied contaminated sediment in the St. Lawrence River since the early 1970s. Its studies have helped to identify contaminated zones and determine the quality of sediment in the St. Lawrence River and its three lakes (Lac Saint-François, Lac Saint-Louis, and Lac Saint-Pierre), as well as the ports of

The importance of committed partnerships

Cleaning up contaminated sediment in Thunder Bay

Over the past two decades, contaminated sediments have been found near Northern Wood Preservers Inc. in Thunder Bay harbour—for example, polycyclic aromatic hydrocarbons (PAHs). These are persistent and toxic and can accumulate in organisms. The International Joint Commission, Canada, and Ontario designated Thunder Bay harbour as an area of concern, in part because of this contaminated sediment. Government agencies, industry, and the public joined in developing a remedial action plan that identified goals and initiatives for the remediation of the harbour. The Northern Wood Preservers Inc. site is a key element of this plan.

Environment Canada and the Ontario Ministry of Environment and Energy (today the Ministry of the Environment) established cleanup criteria. The primary criterion was based on the sediment's toxicity to organisms most likely to come into contact with it. Sediments at concentrations of more than 150 parts per million (ppm) total PAH resulted in severe toxic biological effects. Consequently, Environment Canada and the Ontario Ministry of Environment and Energy recommended that those sediments be isolated or removed from the lakes. They also recommended that sediments between 30 ppm and 150 ppm total PAH be isolated. In a 1996 study, the Ministry found that sediments below 30 ppm total PAH appeared to have no toxic biological effects. It therefore concluded that these could be left in place to remediate naturally.

The key to remediating the contaminated sediment at this site was an agreement signed in 1997 by Environment Canada, the Ontario Ministry of Environment and Energy, and three companies involved: Northern Wood Preservers Inc., Abitibi Consolidated Inc., and Canadian National Railways (today Canadian National). Each company committed \$1.5 million to the project, the Ministry committed \$1.5 million, and Environment Canada committed \$3.3 million from the Great Lakes 2000 Cleanup Fund. The Cleanup Fund spent another \$465,500 on sediment studies.

In 2001 the five parties signed another agreement (as the original agreement had required) when the total costs passed \$9.3 million. By 31 December 2000, the parties had spent a total of \$14.7 million. The total cost of completing the project is estimated at \$20 million, with the federal government's share more than \$5 million.

Montreal, Trois-Rivières, and Quebec City. It has done at least nine studies of sediment in eight zones of prime concern that our audit covered. It has also examined the impact of contaminated sediment on beluga whales in the St. Lawrence River.

3.2.25 In 1989 and 1990, Environment Canada identified 40 contaminated sites along the St. Lawrence River and another 25 sites that might have been contaminated. In 1993, it identified 16 sites as priorities. The federal government has not updated its inventory of sites since then.

3.2.26 Though much studied, little contaminated sediment in the St. Lawrence River has actually been cleaned. Some has been removed in the course of dredging to maintain the St. Lawrence Seaway and harbour facilities. In Montreal, three companies, the Port of Montreal, and Environment Canada are negotiating an agreement to address the contaminated sediment in Sector 103 of the Port of Montreal. Plans are also being developed with local industry near Valleyfield, Quebec, to remove contaminated sediment from nearby waters. As we concluded our audit, however, neither of these efforts had led to any formal agreements or action.

As in Ontario, Environment Canada has no co-ordinated plan or framework for the abatement and control of contaminated sites in Quebec.

3.2.27 The federal government has neither clear commitments nor a long-term game plan for addressing contaminated sediment.

Conclusion

3.2.28 Overall, we concluded that the federal government has shown a commitment to encouraging industry to reduce toxic emissions, but less to encouraging municipalities. It has demonstrated only partial commitment to remediating contaminated sediment.

3.2.29 Along with the provinces, the federal government has been effective at encouraging industry to reduce its emissions. It has funded programs that helped municipalities improve their sewage treatment, among other things, though it has not directly encouraged them to do it. It has conducted studies of contaminated sediment and assisted in the cleanup of some sites. But it has made no specific commitment, set no priorities, and developed no plan of action to clean up contaminated sediment.

Our audit objectives and main findings

Holding the federal government to account		
❶ Has the government fulfilled its commitments?	Commitments	Results
	Develop and implement abatement, control, and prevention programs for industrial discharges.	<p>The government's regulations under the <i>Canadian Environmental Protection Act</i> and the <i>Fisheries Act</i> have led to at least \$1.5 billion in investments by industry to reduce effluents.</p> <p>Its regulations have significantly reduced some industrial discharges.</p> <p>It does not have an overview of what remains to be done for industrial effluents.</p>
	Develop and implement abatement and control programs for municipal discharges.	The government has contributed over \$60 million for upgrades of sewage treatment infrastructure; however, much remains to be done.
	Develop and implement abatement and control programs for contaminated sediment.	<p>The government has spent close to \$20 million on various studies and activities, but most contaminated sediment has yet to be addressed.</p> <p>Its commitment to address contaminated sediment is unknown.</p>

Our audit objectives and main findings

Assessing the government's performance

2 Has the government applied good management practices?	Strengths	Weaknesses
	<p>The government has used tools (for example, legislation, fiscal agreements, research) to address effluents.</p> <p>It has created a public database to publicize cleanup techniques used in the Great Lakes.</p>	<p>The government has not assigned priorities to address effluents.</p> <p>It has not developed a plan to address contaminated sediment in the basin.</p> <p>It lacks indicators for measuring progress and trends.</p>
3 Has the government established good governance structures?	<p>The government, along with the provinces, has regulated industry to protect the public interest.</p> <p>It developed the National Pollutant Release Inventory to report on industrial facility releases.</p>	<p>It has no clear accountability and reporting responsibility for remediation of contaminated sediment.</p>

3.3 Areas of Concern in Ontario: Tackling Contamination

The issue **3.3.1** In the 1970s and 1980s, several areas along the Great Lakes were severely contaminated. Algal blooms choked off bays and harbours, and many people considered Lake Erie to be dying. Bacterial contamination led to beach closings. People were finding birds with twisted beaks and catching fish with gross tumours. Chemical contamination led to limits on fish consumption. The putrid smell of the water left waterfront areas unused.

3.3.2 In 1985, the International Joint Commission, the governments of Canada and Ontario, and the U.S. federal and state governments identified 42 geographic areas of concern—areas that were severely degraded—along the shores of the Great Lakes; another was added to the list in 1991. Twelve were in Ontario, and five more were shared by Canada and the U.S. along connecting rivers (Exhibit 3.1). The 1987 protocol to the Great Lakes Water Quality Agreement cited areas of concern as the most polluted areas in the Great Lakes and St. Lawrence River basin, where action was urgently needed.

Exhibit 3.1 Canadian areas of concern in the basin



3.3.3 Included in the revised Great Lakes Water Quality Agreement (1987), Canada and the United States developed a list of “impairments to beneficial uses” of areas of concern or adverse effects on aquatic life. These impairments were wide-ranging—from tainting of fish to eutrophication, from loss of habitat to beach closings. Since they were broadly defined, the list of impairments did not always offer good guidance on what had to be done.

Tainting of fish and game flavour, for example, is not easily measured; nor is improvement.

3.3.4 The Great Lakes Water Quality Agreement directs Canada and the U.S. to co-operate with provincial and state governments on a remedial action plan for each area of concern. A three-stage reporting process was established:

- Stage 1 was to identify the environmental problems in the area of concern.
- Stage 2 was to outline cleanup activities to resolve those problems and specify who would undertake them.
- Stage 3 was to provide information from monitoring and surveillance to show that an area of concern had been fully restored to its beneficial use. Reports were to be submitted to the International Joint Commission for review and comment after each stage. Only after all three stages were completed could an area of concern be “delisted.”

Only one area of concern in Canada has been delisted, Collingwood Harbour; the 16 remaining areas of concern in Canada are at various stages of completion.

The federal role

3.3.5 Through the Great Lakes Water Quality Agreement, the federal government committed to restoring areas of concern by developing and carrying out remedial action plans. The 1994 Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem committed both governments to restoring areas of concern and having nine of them delisted by 2000.

Our audit questions

3.3.6 What is the federal government trying to accomplish in the areas of concern? What is their current status, and when does the government plan to have them delisted?

The story

3.3.7 Although spread throughout the basin, many areas of concern have similar problems: pollution by industrial effluents, releases from municipal sewage treatment plants, and combined sewer overflows; contaminated sediment from old industrial and municipal releases; and runoff of pesticides, fertilizers, manure, and soil from farms.

Local management is key, but oversight is needed

3.3.8 For well over a decade, the federal government has been determining what it needs to do in areas of concern. When it began, it had no other model to work with. This was a new approach for both the federal and the provincial governments, with a large learning curve to climb.

3.3.9 The stage 1 reports had been substantially completed by the federal and Ontario governments by 1992. We found that the reports clearly described the existing risks or problems in the areas of concern. The federal government also helped establish a public advisory committee to increase public awareness of environmental problems and their potential solutions. The committees were formed by Environment Canada and the Ontario Ministry of the Environment and included industry, conservation authorities,

and municipal staff, as well as Natives and other local citizens concerned about their environment. They were instrumental in setting restoration goals and planning remedial actions.

3.3.10 Remedial action plan teams were also assembled to define restoration targets and develop plans to measure progress toward them. Through the Canada–Ontario Agreement, the Ontario government appointed the majority of the people on remedial action plan teams. Provincial budget cuts in the 1990s left teams without a co-ordinator in many areas of concern. Some remedial action plans became “orphan” plans temporarily, with nobody clearly in charge of implementing them. Later, Environment Canada assumed the co-ordinating role for most of those sites.

Did you know?

- Number of Canadian areas of concern identified by the International Joint Commission in 1985: **17**
- Number of areas of concern delisted since 1985: **1**
- Amount the federal government spent on the areas of concern through the Great Lakes 2000 Cleanup Fund: **\$65 million**
- Amount of the \$65 million spent on habitat restoration: **\$24 million**
on contaminated sediment: **\$18.5 million**
on urban runoff: **\$8.6 million**
on sewage treatment: **\$7.7 million**
on non-point source pollution: **\$4.6 million**
on administration and communications: **\$1.5 million**

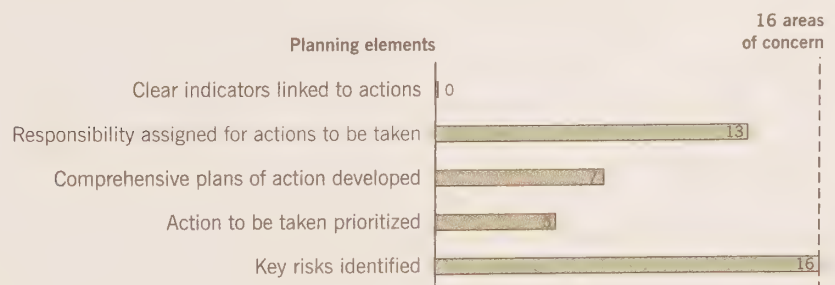
Remedial action plans do not provide clear direction

3.3.11 The federal government had received and responded to 11 stage 2 reports by 1998, and subsequently submitted them to the International Joint Commission. A comprehensive plan is one that describes its purpose and priorities, actions needed, accountabilities, and a method for measuring progress. We reviewed the stage 2 reports against these attributes.

3.3.12 The stage 2 reports generally did not offer the guidance expected from a good plan. Of the 16 areas of concern that remain, 12 have remedial action plans that lack key planning elements. In general, the remedial action plans did identify key risks and list environmental actions to be taken. Most, however, did not provide direction on what actions were most important, what had to be done to delist the site as an area of concern, and how progress would be measured. The Detroit River, Severn Sound, Bay of Quinte, and Wheatley Harbour remedial action plans met most of our criteria, though none of them had clear indicators linked to the actions proposed (Exhibit 3.2).

3.3.13 While the plans may not have been robust, they served to identify a range of projects for funding. Because the plans did not set clear priorities, however, it was not always clear that the funded projects addressed the highest priorities.

Exhibit 3.2 Key planning elements addressed in remedial action plans



Taking action to clean up areas of concern

3.3.14 The federal Great Lakes 2000 Cleanup Fund was set up to provide federal funds for cleanup efforts in the Canadian areas of concern so they could eventually be taken off the list. It supported programs to help restore water quality and to develop cleanup technologies. The Fund was designed to be leveraged; it typically funded one third of each project and the rest came from a variety of partners. From 1990 to 2000, the Cleanup Fund contributed more than \$65 million to projects that ranged from restoring wetlands to making sewage treatment plants more effective (see case study, Activities and improvements in the Hamilton Harbour Area of Concern). The federal money was matched by \$133 million from about 400 different partner groups. Overall, we found that the Fund has been managed well and used constructively to deal with environmental problems in the areas of concern.

3.3.15 Clearer rationale needed for financing actions. It is not clear how Environment Canada allocates cleanup funds among areas of concern and among projects within each area of concern, or which actions the federal government is committed to implementing. While some areas need a lot more remediation than others, Environment Canada has not articulated how funding should be allocated. To date, 44 percent of the Cleanup Fund's total spending has gone to three areas of concern—Hamilton Harbour, Toronto, and Thunder Bay. The three areas of concern at the low end of spending—Wheatley Harbor, Jackfish Bay, and Port Hope—have together received 0.3 percent of the Fund's total contributions.

3.3.16 Criteria for funding are to be based on technical merit and the priorities of the remedial action plan; a project that receives funds must also address one or more of the impaired beneficial uses. In practice, the projects selected for funding are mainly those that have local partners willing to put up their own funds—typically, two thirds of the project's costs. The selection of a project, therefore, often depends on the level of local interest in the project, not necessarily on its significance to improving the area of concern or the basin.

3.3.17 The types of activities funded by the Cleanup Fund have targeted habitat restoration, sediment cleanup, urban runoff, sewage treatment, effluent pollution, and administration and communications. Examples of projects include the following:

- **Municipal effluent treatment.** Federal funds have gone toward improving sewage treatment through, for example, the Municipal Sewage Treatment Plant Optimization Program. By maximizing their efficiency while keeping the costs low, sewage treatment plants improved the quality of the effluent they released.
- **Rural runoff control.** Between 1990 and 2000, the Cleanup Fund supported various projects to curb agricultural runoff into the Great Lakes. For example, it helped to finance 12 kilometres of fencing along the Welland River in the Niagara River Area of Concern, thereby blocking access to the river by 500 head of livestock.



In Collingwood Harbour, the Great Lakes 2000 Cleanup Fund was used to construct a park with an environmental theme.

Source: Environment Canada

- **Fish and wildlife habitat.** The Cleanup Fund has contributed to several coastal wetlands restoration projects in the basin, including \$6,765,000 for Cootes Paradise in Hamilton Harbour and \$82,000 for coastal wetlands rehabilitation in Toronto.
- **Pilot cleanup technology.** Work in the areas of concern has provided opportunities to pilot a range of cleanup technologies. Environment Canada developed the Remediation Technologies Program to identify and demonstrate technologies that would remove and treat contaminated sediments. The Cleanup Fund examined 29 of the technologies that were demonstrated; several of their developers won international contracts as a result of their demonstrations.
- **Public education.** The Cleanup Fund contributed to a variety of projects in areas of concern to increase public understanding of the Great Lakes environment. Workshops, conferences, and symposiums focussed on strategies to clean up and maintain the areas of concern and the Great Lakes ecosystem. For example, in co-operation with American agencies, Environment Canada used the Cleanup Fund to support the *Great Lakes Alive* documentary series, broadcast on TVOntario.
- **Children's park.** In Collingwood, Ontario, the Cleanup Fund was used to construct a park with an environmental theme.

Activities and improvements in the Hamilton Harbour Area of Concern

Hamilton Harbour is on the western edge of Lake Ontario, in a 500-square-kilometre watershed. Over a half-million people live in five municipalities in the watershed. Development has eliminated 75 percent of the original wetlands, protected inlets, and shallow areas of the landscape. The Niagara Escarpment and Cootes Paradise are two natural features. On the south side of the harbour is the largest concentration of iron and steel industry in Canada; the upper watershed is a mix of rural and urban land. Major problems are pollution, contaminated sediments, combined sewer overflows, loss of shoreline access, and degradation or loss of fish and wildlife habitat.

According to Environment Canada, improvements have been made in the Hamilton Harbour Area of Concern through the efforts of various stakeholders, including the federal government, the provincial government, municipalities, industry, university and non-profit groups, and concerned individuals. From 1970 to 1990, an estimated \$600 million (in 1990 dollars) from all partners was spent to restore the harbour. From 1990 to 1997 another \$175 million was spent, \$13.7 million of it from the Great Lakes 2000 Cleanup Fund. Despite this investment, contaminated sediment, one of the main impairments of beneficial use in this area of concern, remains a serious problem that has yet to be addressed effectively. The following are some of the more successful results:

- Since 1990, about \$20 million has been spent on habitat restoration, \$7.2 million of it from the Cleanup Fund.
- New habitat islands have been created, as well as submerged habitat, a fishway, trails, and viewing stations at five locations around the harbour and Cootes Paradise marsh.
- Approximately \$4 million was spent from 1995 to 1998 to optimize Halton's Skyway Sewage Treatment Plant, at least \$200,000 of it from the federal government.
- A total of \$53 million was spent to clean up combined sewer overflows in Hamilton, \$8.2 million of it from the Canada Infrastructure Works program and \$296,000 from the Cleanup Fund. This allowed beaches at the Pier 4 and Bayfront parks to be opened in 1993 for the first time in 50 years.
- The federal government has spent over \$4 million on sediment cleanup, including preparatory work for a sediment removal and treatment project near Randall Reef, close to the Stelco docks.
- The steel industry has invested over \$76 million in effluent controls in the last decade, with major improvements in effluent quality.
- Public access to the harbour shoreline increased from 2 percent in 1986 to 23 percent in 2000, mostly due to the creation of Pier 4 and Bayfront Park and a waterfront trail. The Ontario Ministry of the Environment contributed \$7 million for soil remediation; the federal government's Millennium Partnership program contributed \$500,000 for a waterfront trail.

Turning to the future

3.3.18 Many of the projects that remain to be implemented will be very costly—upgrading sewage treatment plants, for example, and cleaning up contaminated sediment. Tackling them may not always be possible with the expertise and resources available on local community teams. The federal government has been funding projects for over a decade, but we found no evidence of long-term planning to minimize the time or expense involved in fully restoring Canadian areas of concern (see case study, Delisting the Severn Sound Area of Concern while building a sustainable community). Of the 17 areas of concern identified in Canada in 1985, 16 are still on the list.

3.3.19 The Great Lakes 2000 Cleanup Fund was replaced in July 2000 by the Great Lakes Sustainability Fund. This \$30 million, five-year fund is intended for projects that will complete federal actions in 13 of Canada's 16 remaining

Delisting the Severn Sound Area of Concern while building a sustainable community

Severn Sound, a group of bays in southeastern Georgian Bay, was famous in the 1970s for walleye, a popular game fish. In the 1980s, the bays and inlets of Severn Sound filled with algae, known locally as “green goo.” The algal growth was caused by high levels of phosphorus, which entered the water from farms, rural septic systems, sewage treatment plants, shoreline development, and storm water. As the algae grew, the waters became murky and the walleye population dwindled.

In 1985, the Canadian and U.S. federal governments and their partners declared Severn Sound an area of concern. They cited the following eight problems:

- restrictions on fish and wildlife consumption
- degradation of fish and wildlife populations
- degradation of bottom-dwelling plants and animals, such as crabs
- restrictions on dredging activities
- eutrophication, with undesirable algae
- degradation of shoreline beauty
- degradation of phytoplankton and zooplankton communities
- loss of fish and wildlife habitat

The federal and provincial governments, with local stakeholders, established the Severn Sound remedial action plan development team. Partners on the team included Environment Canada; Fisheries and Oceans; the Ontario Ministry of the Environment; the Geological Survey of Canada; the Ontario ministries of Natural Resources and Agriculture, Food and Rural Affairs; local municipalities; landowners; farmers; and members of the community. The team was led by a full-time co-ordinator on loan from the Ontario Ministry of the Environment. A public advisory committee of local volunteers was also established.

In 1995 the federal and provincial governments announced that they would gradually wind down their support to the remedial action plan team. The local community established the Severn Sound Environmental Association in 1997. Its mission is “to restore environmental quality and to ensure continued protection through a legacy of wise stewardship of Severn Sound and its tributaries.” The Association links partners and secures the resources needed to carry out the remedial action plan.

The remedial action plan co-ordinator prepares an annual business plan that includes anticipated revenues, expenditures, and revisions to the previous business plan, and submits it to the partners for review. The co-ordinator must also prepare an annual report outlining progress toward objectives and indicating the overall progress toward delisting Severn Sound as an area of concern.

The Severn Sound community actively participates with the Association. Members of the community help to set goals and define priorities for remedial action. Landowners, farmers, volunteers, and community groups devote time and money to restoration projects.

This community-led approach is moving toward delisting Severn Sound as an area of concern. The Association reports that most actions listed in the action plan have been completed, and efforts are now under way to assess whether the impaired beneficial uses have been restored. If the Association can secure a source of funding, it plans to remain active even after Severn Sound is no longer an area of concern.

areas of concern and make progress in the other three. We have two concerns. First, federal actions have never been listed. While categories of federal funding are described, specific commitments are not. For example, the government considers remediating contaminated sediment to be a federal action but does not commit to remediating any specific sites, with or without partners. Second, the federal government is ambiguous about its responsibility for actions by others, even if those actions are necessary for Canada to fulfil its responsibility for restoring the beneficial uses of areas of concern. Will the federal government walk away before the job is done?

Conclusion

3.3.20 The federal government has been actively engaged in setting up structures to implement actions in areas of concern. It has generally managed its cleanup fund well to assist projects in areas of concern. However, it has not decided what it wants most to accomplish in areas of concern. It has not set clear priorities for action. The projects selected for funding are mainly those that have local partners willing to contribute their own money. It is not clear how or when the government plans to see the remaining 16 areas of concern restored and delisted. Until then, we may still have contaminated water, toxic fish, and beach closings.

3.3.21 In our view, to ensure that the remaining work in the areas of concern is completed, the federal government needs to provide greater leadership and support—setting priorities, clearly linking proposed actions to criteria for delisting, and brokering co-ordinated action by other governments and organizations.

Our audit objectives and main findings

Holding the federal government to account		
❶ Has the government fulfilled its commitments?	Commitments	Results
	Restore and delist nine areas of concern by 2000.	Only 1 of the 17 areas of concern has been delisted since 1985. No others have been delisted since the 1994 Canada–Ontario Agreement Respecting the Great Lakes Ecosystem.
Assessing the government's performance		
❷ Has the government applied good management practices?	Strengths	Weaknesses
	The government has identified and documented existing risks.	The government has done poorly at developing programming priorities, plans, and indicators in remedial action plans. Some areas of concern have no management structures.
❸ Has the government established good governance structures?	The government has set up a Web site that documents the stages completed in the areas of concern and provides a breakdown of projects.	The government has not defined its responsibility for addressing each area of concern.

3.4 Monitoring Water Quality: Human and Ecosystem Health

The issue

3.4.1 The quality of drinking water in the Great Lakes and St. Lawrence River basin is one of the chief environmental concerns of people living there. They want to know that they can trust their drinking water. Recent tragedies in Walkerton, Ontario and North Battleford, Saskatchewan have heightened public concern about the quality of drinking water. A poll in May 2001 found that 46 percent of Canadians do not trust the safety of the water coming out of their taps.



Forty-six percent of Canadians do not trust that the water coming out of their taps is safe to drink.



Many pollutants found in the basin can harm human and ecosystem health. They accumulate in tissues as they move up the food chain, their effects magnifying.

3.4.2 Many pollutants found in the basin can harm human and ecosystem health—organochlorines such as PCBs and metals such as mercury, for example. These chemicals do not break down easily, and some do not at all; they persist in the environment and accumulate in tissues as they move up the food chain, their effects magnifying. Organochlorines accumulate in fatty tissues, even breast milk; metals accumulate in organs, muscle, and flesh. Endocrine-disrupting chemicals, pharmaceuticals, and personal care products discharged into our waters may also affect human and ecosystem health.

The federal role

3.4.3 The federal government's role in ensuring a safe supply of drinking water is limited; drinking water is primarily a provincial responsibility. Health Canada assists in developing the guidelines for drinking water quality and provides a secretariat to the Federal–Provincial–Territorial Subcommittee on Drinking Water. Provincial governments either apply the Subcommittee's national guidelines directly in their provinces or use them to develop their own. How guidelines are applied and monitored is a provincial responsibility.

3.4.4 The federal government does have a mandate to monitor the quality of surface waters under the *Canada Water Act*, the *Department of the Environment Act*, and the 1987 Federal Water Policy. The Great Lakes Water Quality Agreement commits Canada and the United States to extensive monitoring and reporting of water quality in the lakes. Environment Canada does this monitoring on Canada's behalf in both the Great Lakes and the St. Lawrence

River. It also monitors certain species whose tissues are good indicators of changes in the levels of known contaminants.

3.4.5 Health Canada has also conducted studies of the health risks of exposure to various contaminants in the basin.

Our audit question

3.4.6 How does the federal government monitor the quality of the water in the basin to ensure that the health of Canadians and the basin's ecosystem is not at risk?

The story

Do we know whether our drinking water is safe?

3.4.7 Federal role is limited. The development of Canada's national guidelines for drinking water quality is a joint effort by the federal and provincial governments. The purpose of the guidelines is to protect health by establishing the safe levels of various contaminants commonly found in drinking water. As part of its mandate to protect human health, Health Canada has played a key role in the development of drinking water quality guidelines since 1968. It develops risk assessments for substances that are potentially harmful. While Health Canada has various supporting roles to play, outside of most First Nations reserves it does not test drinking water quality to determine whether it meets the guidelines (Exhibit 3.3).

3.4.8 Generally, the state of Canada's drinking water is considered good, but recent events have shaken the public's confidence. According to the Ontario government, drinking water in at least 26 Ontario locations did not meet the province's health objectives in 1998–99. In recent years, several municipalities throughout Canada have had to issue orders to boil water.

3.4.9 Aside from Ontario's recent reports on drinking water quality and anecdotal evidence such as boil orders, Health Canada does not know the quality of drinking water across the country. It does not know whether the very guidelines it helps develop to protect Canadians' health are being followed. It has done limited surveys of provincial systems and regulations but not of the water quality itself. We found no evidence of a review by Health Canada of the overall state of Canada's drinking water, the provinces' use of the guidelines, or the extent to which the quality of drinking water meets the guidelines.

3.4.10 If the federal government chose to, it could play a stronger role in setting standards for drinking water. Under the *Food and Drugs Act*, the federal government regulates the quality of all food and drink sold in Canada. This includes, for example, water that is used in prepared soups and in soft drinks. Apparently, it does not extend to drinking water sold by municipalities.

3.4.11 Unlike the U.S. and the European Union, Canada does not have standards for drinking water that are enforced nationally. Use of the guidelines is at the provinces' discretion. Federal legislation to address drinking water quality is a move that has been proposed; at the end of our audit, the federal government was considering it.

Exhibit 3.3 Drinking water quality guidelines—roles

Federal	Federal–Provincial–Territorial Subcommittee on Drinking Water	Provincial and Territorial
<p>Health Canada and Environment Canada participate on the Federal–Provincial–Territorial Subcommittee on Drinking Water.</p> <p>Health Canada provides the Subcommittee's Secretariat.</p> <p>Health Canada develops risk assessments for substances under review or scheduled for review.</p> <p>Health Canada prepares technical documents for Subcommittee's review.</p> <p>Health Canada publishes <i>Guidelines for Canadian Drinking Water Quality</i>.</p> <p>Health Canada maintains information on the Subcommittee and its activities.</p> <p>Health Canada applies the guidelines in areas that fall under federal jurisdiction.</p>	<p>The Subcommittee identifies new substances, re-evaluates existing guidelines, assesses and evaluates proposed guidelines, and consults with affected parties.</p> <p>It makes recommendations to the Federal–Provincial–Territorial Committee on Environmental and Occupational Health for endorsement of proposed guidelines.</p>	<p>The provincial and territorial governments participate on the Subcommittee.</p> <p>They incorporate guidelines into provincial and territorial guidelines, standards, or legislation, at their discretion.</p> <p>At their discretion, they establish and enforce approval, sampling, monitoring, and reporting procedures for drinking water providers.</p>

Monitoring the quality of open waters

3.4.12 Monitoring the quality of water in lakes and rivers is important to understand how contaminants in the waters of the basin affect the ecosystem, including human health. Monitoring allows the federal and provincial governments to assess the state of the basin and to identify trends in pollutants entering the water. Monitoring water quality is also critical to identify new problems and the biggest threats to health.

3.4.13 Environment Canada monitors water quality in the open waters of the Great Lakes by planned sampling at regular locations throughout the basin. Depending on the year and the lake, this sampling has included between 60 and 100 attributes of the water in each lake since the mid-1990s. Environment Canada also monitors water quality in the Niagara and St. Clair rivers and at Wolfe Island (near Kingston, Ontario) in the St. Lawrence River.

3.4.14 Throughout the 1990s, Environment Canada's monitoring covered each of the Great Lakes intermittently. Its monitoring program has included, at different times, all of the metals and persistent organic pollutants listed as

priorities in the Great Lakes Water Quality Agreement (except toxaphene, for which there is not yet a clear monitoring protocol). Other toxic metals and organic pollutants are also monitored.

3.4.15 Monitoring of water quality in the St. Lawrence River is different. Between 1985 and 1990, Environment Canada monitored water quality intermittently at 72 locations on the river. Partly from those monitoring data, Environment Canada developed a contaminant-modelling program for the St. Lawrence River. In 1992 it established a site near Quebec City for permanent monitoring. The Department now relies on this single site for most of its data on the quality of water in the river, though it supplements them with data it collects at Wolfe Island and data that Quebec collects along the St. Lawrence River and its tributaries.

What we do not monitor today may affect us in the future

3.4.16 Over 23,000 chemicals are currently used in Canada. Of these, 245 are included on the 1999 National Pollutant Release Inventory, and 58 of those are released directly into the waters of Quebec and Ontario. The presence of most of these pollutants is not monitored by Environment Canada in any of the Great Lakes or the St. Lawrence River.

3.4.17 Existing data show a decline in contamination. The monitoring data that do exist show a clear decline throughout the 1970s and 1980s in concentrations of contaminants in the Great Lakes and the St. Lawrence River. The federal government's ban in the 1970s on the use of DDT and other pesticides seems to have worked. Tighter regulation of toxic chemicals over the past three decades appears to have led to improvements in water quality. Concentrations of DDT in breast milk and wildlife tissues have dropped.

3.4.18 From the early 1970s to the mid-1980s, concentrations of total phosphorous in the open waters of lakes Ontario and Erie declined significantly. Since the mid-1980s, however, concentrations in all of the Great Lakes have been stable, and they are rising again in parts of Lake Erie.

3.4.19 Other data show a levelling off or a slight increase in some toxic substances and chemicals. Chemicals carried by the wind from hundreds or even thousands of kilometres away contribute to concentrations in the basin. So, probably, does leaching from farmland of chemicals sprayed many years ago or pesticides used today.

Indicator species also provide information on water quality

3.4.20 Some persistent contaminants that are difficult to detect in water can be measured more easily in tissues of certain fish and wildlife species. Herring gull eggs are one such indicator.

3.4.21 Environment Canada established a program in the early 1970s to understand better how contaminants accumulate in the ecosystem. It monitors levels of key contaminants, such as DDT and PCBs, in the eggs of Great Lakes herring gulls and other water birds such as cormorants.

Did you know?

- Number of attributes that Environment Canada monitors in the waters of each of the Great Lakes: **60 to 100**
- Number of chemicals that are used in Canada: **over 23,000**
- Number of chemicals that are on the 1999 National Pollutant Release Inventory: **245**
number released into waters in Quebec and Ontario: **58**
number monitored by Environment Canada in the Great Lakes: **fewer than half**

Researchers can detect in gull eggs the presence of new contaminants in the environment and changes in the levels of known contaminants. They also maintain a bank of samples they can use, if desired, to test later for the presence of contaminants not previously measured.

3.4.22 The herring gull eggs study indicates that water quality has improved. Contaminants in herring gull eggs have declined significantly since the early 1970s, although concentrations of some contaminants levelled off in the 1980s. Herring gull eggs provide a good indicator of regional water quality. Environment Canada is also considering the use of site-specific indicator species, such as snapping turtles and the great blue heron.

Long-term health impacts of water

3.4.23 One of the key concerns about water quality in general is the long-term effects it has on people's health. The Great Lakes Water Quality Agreement commits the governments of Canada and the United States to reduce the health risks from exposure to toxic substances in the lakes. Health Canada has committed to conducting research to help protect health in the basin through its Great Lakes Health Effects Program and the Health Component of St. Lawrence Vision 2000. It works with other federal departments, the Ontario Ministry of Health (now the Ministry of Health and Long-Term Care), Quebec Department of Health and Social Sciences, and academic researchers on human health problems in the basin.

3.4.24 Health Canada started the Great Lakes Health Effects Program in 1989 as part of the first Great Lakes Action Plan. It introduced the Health Component of St. Lawrence Vision 2000 in 1993. Both the Health Component and the Great Lakes Health Effects Program were designed to protect human health in the basin from the effects of exposure to contaminants in the environment.

3.4.25 Health Canada has completed various studies throughout the basin. For each of the 17 Canadian areas of concern around the Great Lakes, it prepared a study on general health status and selected health outcomes (disease and mortality incidences). In another study, it assessed the exposure of people living in the Great Lakes basin to persistent environmental contaminants. Along the St. Lawrence River, reports by the Health Component on 12 zones of prime concern describe the health risks related to the use of the St. Lawrence River.

3.4.26 Health Canada's studies show that eating fish is the main way people are exposed to persistent contaminants in the waters of the basin. Aboriginal people, certain minority groups, and sport anglers are particularly at risk, because they tend to eat more fish than the general population or have physical or genetic traits that make them more susceptible. The lower resistance of the elderly, developing fetuses, and nursing infants makes them, too, more vulnerable to the effects of contaminants. Developmental, reproductive, neurological, and behavioural problems are some health effects of significant exposure to persistent toxic contaminants.

3.4.27 Health Canada has prepared a handbook for health professionals on health and the environment and published a status report on human health in the St. Lawrence River basin. Still, provincial government fish consumption guidelines are the only direct way at present that the public is informed about the risks of eating fish.

3.4.28 This may not be enough. A study for Health Canada found that in 1996 and 1997, only about a third of fish eaters in five of the Ontario areas of concern had used the province's sport fish consumption guide. A study in Quebec found that only 40 percent of fishers said they always followed fish consumption recommendations in that province. Nevertheless, Health Canada has no plans to develop its own health communications strategy. It has very limited funding for the Great Lakes, and funding for the Health Component of St. Lawrence Vision 2000 has been reduced. Some partners have expressed concern that important research is not being conducted or is being delayed unnecessarily.

Conclusion

3.4.29 Health Canada has fulfilled its obligation to help develop guidelines for drinking water quality. However, certain gaps in Canada's monitoring of drinking water are a concern. Monitoring the quality of drinking water and informing the public when safety precautions are needed are provincial responsibilities. The federal government does not obtain information on the results of provincial monitoring. Ontario is the only province in Canada that is committed to informing the public when water quality does not meet the provincial guidelines. In the other provinces, there is no straightforward way for the public to know about the quality of drinking water. We note that water used in foods and drinks is regulated across Canada but, in most provinces, water that comes out of the tap is not.

3.4.30 Overall, Environment Canada is meeting its basic obligations to monitor the presence of contaminants listed in the Great Lakes Water Quality Agreement. It monitors water quality in the Great Lakes and the St. Lawrence River and has studied certain indicator species to gain a better understanding of changes in water quality over time.

3.4.31 However, the federal government's understanding of changes in water quality is based on a limited number of substances that are known to be harmful to human health. Many substances are not monitored at all.

3.4.32 Health Canada has studied the effects of water quality on human health, and has identified populations in the basin who are at risk from excessive exposure to contaminants. But it does not communicate this information directly to the people who may be at risk.

Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	Develop national guidelines for drinking water quality.	Health Canada participated in the development of the Guidelines for Canadian Drinking Water Quality, last updated in 1996.
	Monitor water quality in the Great Lakes and the St. Lawrence River.	Environment Canada monitors water quality in a planned and scientific way in the Great Lakes and the St. Lawrence River. It monitors the eggs of herring gulls as an indicator of contaminant levels in the Great Lakes.
	Assess the risk of fish consumption to Canadians' health.	Health Canada, in collaboration with partners, has identified populations vulnerable to fish consumption. Health Canada does not have a communications strategy to reach these populations, and it has not allocated resources to develop a strategy.

Assessing the government's performance

❷ Has the government applied good management practices?	Strengths	Weaknesses
	Environment Canada is monitoring contaminants listed in the Great Lakes Water Quality Agreement and analyzing the trends.	Environment Canada monitors fewer than half of the 58 contaminants reported to the National Pollutant Release Inventory that are released into water in Ontario and Quebec.
❸ Has the government established good governance structures?	Environment Canada posts water quality information about the basin on its Web site.	The water quality information on the Web site is not up-to-date.

3.5 Monitoring Water Quantity: Use and Withdrawals

The issue

3.5.1 Fresh water is becoming the world's most sought-after resource. With more than a billion people who do not have enough of it, the thirst for water is set to reach new peaks in this century. The availability and management of fresh water is becoming one of the greatest environmental, political, and social challenges of the 21st century. Corporations have already begun to explore how to meet the rising demand by wealthy but drought-prone markets in the U.S. and Asia.

3.5.2 Although the Great Lakes have an abundant supply of fresh water, it is not an infinite supply. The International Joint Commission and others estimate that only about one percent of the water in the basin is renewable. This one percent is the amount of water that flows through the basin and out the St. Lawrence River and elsewhere and is replenished by rivers, streams, groundwater, and rainfall. As a critical part of the basin's hydrology, it is not expendable. Furthermore, no one knows how climate change will affect the basin; some studies indicate that it could substantially reduce the available supply of water there.

3.5.3 The demand for water is also growing in the basin itself. Already, 16 million Canadians rely on the waters of the Great Lakes and the St. Lawrence River to fill their daily needs. Recent estimates suggest that the population on the Canadian side of the basin will rise 20 percent in the next 20 years; this is sure to put more pressures on the water supply. Growth on the U.S. side will add to the pressures, and so will the rising demand for water outside the basin, particularly in the southern U.S. In 1998 the Nova Group proposed to export roughly 600 million litres of Lake Superior's water each year for five years to supply Asian markets. The proposal was eventually turned down, but it renewed public concern about the export of our water.

3.5.4 The bulk export or diversion of water is a major concern of Canadians. Public debate on the subject is rife with references to domestic and international law and politics. A sound scientific understanding of the effects of exports and diversions will be crucial in settling future debates.

The federal role

3.5.5 Three departments share the federal responsibility for surface water and groundwater quantity issues in the basin—Environment Canada, Fisheries and Oceans, and Natural Resources Canada—and the Department of Foreign Affairs and International Trade is responsible for international agreements. Collectively, and working with the U.S. and the International Joint Commission, those departments determine how much fresh water Canadians have available, who can use it, how much water can flow from Lake Superior, and how much from Lake Ontario to the St. Lawrence River.

3.5.6 The main responsibility for fresh water, however, belongs to provincial governments. They monitor water levels in the lakes and rivers wholly within their borders and near the shores of international boundary waters, such as the Great Lakes. They also determine the supply of water available to consumers in their own provinces. In practice, the federal and provincial

governments share the monitoring of water flows in the Great Lakes and St. Lawrence River basin, under cost-sharing agreements. Municipal governments provide water to consumers, and their pricing policies can have a large influence on water consumption.

3.5.7 The U.S. federal and state governments and the International Joint Commission are also players. Canada shares the management of boundary and transboundary waters with the U.S. through the 1909 Boundary Waters Treaty, which also established the International Joint Commission to resolve disputes over the use of boundary waters.

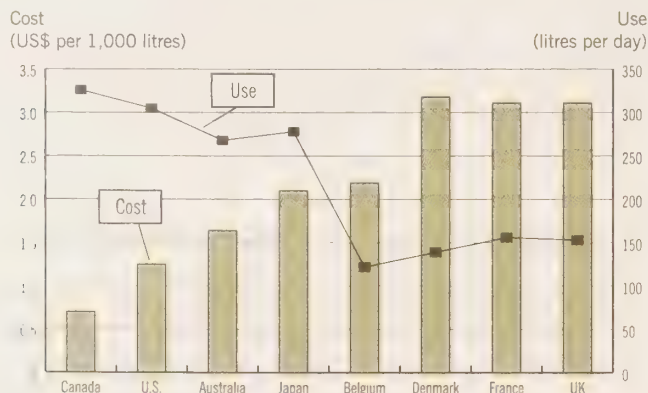
Our audit questions

3.5.8 How does the federal government monitor the quantity of our surface water and groundwater supply? What is it doing to ensure a sufficient and secure supply of water for the future? Is the government carrying out its strategy to prohibit bulk removals?

The story

3.5.9 According to the Organisation for Economic Co-operation and Development, Canadians use more water per person in their homes than people in most other member countries—326 litres a day (Exhibit 3.4). This is mostly because we have always had far more fresh water than our population needs. The demand for Canada's fresh water is expected to grow, at home and abroad. At the current rates of use, the strain on the available supply of fresh water in the basin may contribute to decreased water levels, which could cause significant environmental damage and substantial social costs.

Exhibit 3.4 Canadians use more water and pay less for it



Source: OECD—All data are from 1994 to 1999 except data on U.S. use, which are from 1980.

Monitoring surface water levels

3.5.10 Environment Canada monitors water flows and discharges in both Ontario and Quebec. While monitoring has been reduced somewhat since the mid-1980s, it still provides important information. In Ontario, Environment Canada monitors at over 400 stations, roughly 27 percent fewer than in 1985. It shares the costs of many of the stations with the Ontario government. The Quebec Department of the Environment has a network of

70 to 80 stations that do most of the monitoring in the St. Lawrence River basin. Environment Canada shares the costs of some of these monitoring stations and has 11 of its own in the basin.

3.5.11 The Canadian Hydrographic Service of Fisheries and Oceans monitors water levels in the Great Lakes at 31 stations and in the St. Lawrence River at 16 stations. Technical advances have allowed it to upgrade these stations so they report real-time data by a telephone link to a central computer database. In Ontario, Environment Canada maintains these stations in exchange for their data. The public can also get data from individual monitoring stations by phoning an automated response line.

3.5.12 The International Joint Commission's international water control boards for Lake Superior, the Niagara River, and the St. Lawrence River use the data generated by Environment Canada and other sources to help regulate water levels in the Great Lakes and St. Lawrence River basin. The International Joint Commission also uses Environment Canada data in studies it produces independently.

3.5.13 Using water flow data and advanced modelling techniques, Environment Canada can understand flows within the basin. One report from the Quebec region suggests, for example, that several smaller dams along the Ottawa River can affect the flow of water into the St. Lawrence River significantly more than the larger dam near Cornwall, which regulates flows of water from Lake Ontario. Water flow data and modelling are also used in studies of toxic releases into the St. Lawrence River.

The federal government has a poor understanding of groundwater in the basin

3.5.14 Groundwater aquifers are the prime source of drinking water for 28 percent of Ontario and Quebec residents. Over 270 municipalities in these provinces rely on groundwater for at least part of their municipal supply. Those cities can be severely affected if there are shortages of groundwater.

3.5.15 Groundwater is an important part of the basin's hydrology. According to the International Joint Commission, the Great Lakes system is composed of "numerous aquifers (groundwater) that have filled with water over the centuries, waters that flow into the tributaries of the Great Lakes, and waters that fill the lakes themselves."

3.5.16 The federal government does not have direct responsibility for managing groundwater, except in aquifers that are known to cross provincial and international boundaries. Still, it is responsible for understanding the effects of groundwater on surface water in the basin. The 1987 Federal Water Policy, noting that knowledge of groundwater in the basin was incomplete, committed the government to developing a better understanding of groundwater aquifers.

3.5.17 We found that the federal government has gained little understanding of groundwater in the basin since then. Between 1987 and 1991, Environment Canada carried out limited aquifer and data sampling studies and prepared a groundwater strategy to define the federal role and the actions

the federal government should take. Environment Canada and Natural Resources Canada subsequently agreed to share responsibility for groundwater, but few initiatives were undertaken before 1997. Natural Resources Canada revived the issue with several new research studies in different regions. In June 2000, it brought together federal and provincial officials from across Canada for the first national workshop on groundwater to discuss what is known about its sources.

3.5.18 Natural Resources Canada recently entered an agreement with the United States for co-operation on research in the earth sciences, which includes groundwater. In its 2001 sustainable development strategy, Natural Resources Canada commits to producing a national groundwater strategy by 2002 that will outline federal, provincial, and territorial actions. The Department is also committed to developing a national database on groundwater by 2003. The federal government does not know much more in 2001 about groundwater in most of the basin than it knew in 1987.

3.5.19 In contrast, the United States Geological Survey knows a lot more about the key aquifers on the U.S. side of the basin. It can describe the geology of many of them, their water-yielding characteristics and potential yields, and their flow and interaction with surface water. The U.S. Geological Survey also has information on withdrawals of fresh water from these aquifers.

Partial action to prohibit bulk removals

3.5.20 Proposals for large-scale removals and export of water have surfaced periodically over the past 40 years. According to a 1999 survey by EKOS Research Associates Inc., 13 percent of Canadians believe that under no circumstances should Canada export water, and 66 percent say only on humanitarian grounds.

3.5.21 In its 1987 water policy, the federal government publicly committed to preventing the large-scale removal of water by interbasin diversions. It introduced legislation in 1988 to that effect, which died on the order paper when an election was called.

3.5.22 The government took no further legislative action for more than a decade. Then, in February 1999, it announced a strategy to prohibit the bulk removal of water, including water for export from Canadian watersheds. The strategy had three parts:

- A reference to the International Joint Commission to study the effects of water consumption, diversion, and removal from boundary waters (including export). The reference was submitted by both Canada and the U.S. in February 1999 and the Commission issued its report, *Protection of the Waters of the Great Lakes*, a year later. The report makes recommendations to both governments that, if adopted, would make large-scale, long-distance removals of water from the basin virtually impossible.
- Proposed amendments to the *International Boundary Waters Treaty Act* to prohibit the bulk removal of boundary waters, affecting principally the Great Lakes. This legislation died on the order paper after the call

for a federal election in October 2000, but was reintroduced in February 2001.

- A proposal to protect Canadian watersheds through a Canada-wide accord on bulk removals of water. The accord would commit provinces to prohibiting bulk removals from watersheds under their sole jurisdiction. Negotiations for the accord began in 1999. In November that year, all of Canada's environment ministers (except Quebec's) agreed to prohibit the bulk removal of surface water and groundwater from the Canadian portion of major basins. At the end of our audit, 10 of Canada's 14 federal, provincial, and territorial jurisdictions, including Ontario, had endorsed the accord; four others were still considering it. Quebec has interim legislation in place to prohibit water removal.

3.5.23 The federal government is unable to enforce an accord such as the 1999 strategy proposed. Even if all jurisdictions signed it, the accord would still be only a voluntary agreement, dependent on the continued political will of all provinces. If a province later decided to allow the bulk removal of water from a lake within its jurisdiction, the federal government would have no legal recourse.

Did you know?

- Total volume of lakes Superior, Huron, Erie, and Ontario at low water levels: **17,764 km³**
- Amount of groundwater in basin: **unknown**
- Percentage of water in the Great Lakes that is renewable: **about 1**
- Number of litres of water per day that each Canadian household uses: **326**
- Average cost to Canadians in 1994 for 1,000 litres of water: **96 cents**

Federal objectives for realistic pricing are not being met

3.5.24 The government's 1987 Federal Water Policy committed it to promoting and applying the principles of realistic pricing and user pay. Charging a price for water that reflects both the value of the water and the value of the service—the cost of purification, distribution, cleaning, and disposal—has two important effects. First, consumers tend to use water more efficiently because it saves them money. Second, with the consumer paying the full cost of the service, distributors can spend what is needed to maintain and expand the supply. Regulating how water is provided and priced are provincial and municipal responsibilities, but there are means other than regulation that the federal government could use to carry out its policy.

3.5.25 Canadians use more water per person than almost anyone else on the planet. This is partly because users are rarely charged the full cost of cleaning, supplying, taking away, and recleaning the water they use. On average, Ontario residents are charged less than half this cost on their water bills; most Quebec residents are not charged at all by volume for the water they use. The costs of using water that do not show up on water bills are typically hidden in municipal or regional property taxes, providing no incentive to use less water. In Canada, metered households that paid for water by volume in 1996 used about 268 litres per person every day, compared with 416 litres in households that paid a flat rate.

3.5.26 Since 1987, Environment Canada has taken several modest measures to encourage consumers to manage their demands and conserve water. It has prepared public information materials such as brochures, newsletter articles, and a Web site. It has produced technical studies on realistic pricing and demand management. It also maintains databases on municipal and industrial water consumption and water pricing in major cities across Canada. In

conjunction with the Canadian Water and Wastewater Association, Environment Canada has helped to develop an on-line database of experience with water efficiency.

3.5.27 Missed opportunity to link policies and programs. The federal program of grants for infrastructure has been an important tool for improving municipal infrastructure throughout the basin. Between 1994 and 1999, the federal government contributed \$126 million to Ontario and \$210 million to Quebec for municipal water and sewer projects. Yet neither phase of the program required using water pricing policies as a criterion in evaluating projects. The program funded some water conservation projects but gave no priority to those that promoted demand management or realistic pricing, a federal policy commitment.

3.5.28 Through the Great Lakes 2000 Cleanup Fund, the federal government has spent \$7.7 million to improve sewage treatment (for example, sewage plant optimization studies) and \$8.7 million to handle urban runoff (such as upgrading combined sewer overflows). Like the infrastructure grants, the Great Lakes 2000 Cleanup Fund did not make realistic pricing a criterion in funding projects.

3.5.29 Nor does the federal government's current "green" infrastructure program make any reference to water pricing policies. The government has allocated \$516 million to Quebec over the life of the program; when combined with matching grants by Quebec's provincial and municipal governments, a total of \$1.5 billion will be available. Ontario will get \$681 million in federal money over the life of the program, for a total of more than \$2 billion when combined with matching provincial and municipal grants. The agreements with both provinces stipulate that 40 percent of the funds must go to "greening" municipal infrastructure. While these agreements do recognize the importance of improving water and wastewater management, they do not include realistic pricing of water to consumers as a criterion in evaluating proposed projects.

Conclusion

3.5.30 The federal government continues to monitor water flows, discharges, and levels in the Great Lakes and St. Lawrence River basin. Though recent efforts are encouraging, it still lacks basic knowledge of groundwater aquifers in the basin. Since 1987, when the federal government committed to improving its understanding of groundwater, its knowledge has remained fragmented and incomplete.

3.5.31 The government has taken active steps to carry out its strategy on bulk removals of water, although we note that it took more than a decade to become active after its 1987 policy commitment and its 1988 proposed legislation, which never became law. The strategy was not yet complete by the end of our audit, and it is not clear whether it will be enough to prevent large-scale exports of Canada's fresh water.

3.5.32 The federal government has not carried out its policy to reduce domestic consumption of water through demand management and realistic pricing. The design of its funding programs does not specifically encourage water pricing as stated in the water policy.

Our audit objectives and main findings

Holding the federal government to account		
❶ Has the government fulfilled its commitments?	Commitments	Results
	Monitor surface water.	The government has a surface water monitoring program in place that provides useful information.
	Develop understanding of ground-water in basin.	It has an incomplete and fragmented picture of groundwater in the basin.
	Prohibit large-scale bulk water removals from the basin.	It has completed a reference to the International Joint Commission. Not all provinces and territories have endorsed an accord that, in any case, would be non-binding. Amendments to the <i>International Boundary Waters Treaty Act</i> had not been passed at the conclusion of our audit.
	Promote realistic water pricing and demand management.	The government has not taken explicit measures to encourage the application of water pricing in its infrastructure grants program.
Assessing the government's performance		
❷ Has the government applied good management practices?	Strengths	Weaknesses
	The government's water monitoring program is planned well—it sets priorities and involves responsible departments.	
	It is working with provinces, through a memorandum of understanding, to undertake monitoring of water flows and discharges. It is gathering and providing users with information on municipal water use and pricing through an on-line database.	The government had limited involvement in groundwater between 1991 and 1997.
❸ Has the government established good governance structures?	It provides information on water levels to all users.	
	It shares data on water levels and plans—federal, provincial, and others—on a timely basis.	The government has not clarified its role in and commitment to demand management.
	It has clearly defined roles and responsibilities for water quantity.	The federal government and some provincial and territorial governments have an accord to limit bulk removals of water, but it is only voluntary.

3.6 Planning for Good Water Quality

The issue



Plans are needed to improve water quality in the basin.

3.6.1 Through successive water quality agreements with the U.S. and Ontario over the past three decades, the federal government has planned various actions to improve water quality in the Great Lakes. Similarly, the federal and Quebec governments, through successive agreements, have made concerted efforts to improve water quality along the St. Lawrence River. Examples include reducing phosphorous loading in Lake Erie, carrying out remediation activities in Ontario areas of concern, and reducing releases of toxic substances into the Great Lakes and the St. Lawrence River. While a host of individual actions in both regions had clear plans and priorities, the federal government and its partners were not implementing any basin-wide plans for water quality in either the Ontario or the Quebec region.

3.6.2 The federal government, working with its partners, is in the process of creating a plan for each of the Great Lakes bordering Canada. These plans are to provide decision makers with a good understanding of the risks posed by contamination so they can take the most appropriate actions to address water quality problems. Future progress in the Great Lakes may depend on how well the federal government and its partners develop and carry out the plan for each lake.

The federal role

3.6.3 Under the *Canada Water Act* the federal government, with the provinces, is to develop plans for managing waters of national interest and waters that cross provincial and national boundaries, such as the Great Lakes and the St. Lawrence River.

3.6.4 The 1987 Protocol to the Great Lakes Water Quality Agreement committed the Canadian and U.S. federal governments to develop and carry out, with provincial and lakeside state governments, a lakewide management plan for each of the Great Lakes. The purpose of the plans is to provide comprehensive assessments of significant threats to water quality and restore the beneficial uses of the lakes.

3.6.5 There is no specific commitment to prepare a similar planning document for the St. Lawrence River. Nonetheless, the Canada–Quebec Co-operation Agreement on the St. Lawrence—and good management practices—call for effective planning for the St. Lawrence River.

Our audit questions

3.6.6 Has the federal government identified major threats to water quality and priorities for managing them? Has it developed plans for acting on those priorities, with identified schedules, resource needs, and responsible parties? Has it decided how progress will be measured? Has it considered the ecosystem and areas of concern in planning to improve water quality? Has it used the plans to guide its actions?

The story

Developing lakewide management plans

3.6.7 The development of lakewide management plans is a very complex process. Each lakewide plan is developed over a period of years in joint work by representatives from several Canadian and U.S. federal departments,

U.S. state departments, provincial ministries, and many other stakeholders. Initially, lakewide management plans were to be developed in four stages: defining the problem, scheduling reductions in contaminants, choosing remedial measures and reduction strategies, and reporting on significant progress. In the interest of speeding up the process, Canada and the U.S. abandoned the four-stage sequence for a process that would update the state of knowledge and the management plans every two years, beginning in 2000.

3.6.8 Planning for Lake Superior. The Lake Superior Lakewide Management Plan is the most advanced of any of the lake plans. Stage 1 and its update report were completed in September 1995. The plan identified 22 “critical” pollutants and determined 9 of them to be priorities for elimination. They include mercury, PCBs, DDT, and dioxins. These substances enter the waters from local and faraway sources.

Did you know?

- Estimated percentage decrease in mercury discharges in Lake Superior over the last 10 years: **60**
percentage decrease in dioxin: **75 to 95**

3.6.9 Reduction targets for 9 of the 22 critical pollutants were set in September 1996. Proposed reduction strategies, with actions to be taken by each agency for the next two or three years, were identified in April 2000, as were actions toward eliminating the 9 priority pollutants identified in stage 1. The stage 3 report recognizes the importance of both source monitoring, which measures the amount of a critical pollutant being released from a particular facility, and environmental monitoring, which measures the concentration of contaminants in the environment.

3.6.10 The Lake Superior plan makes a clear commitment to the ecosystem under five ecosystem themes: aquatic communities, terrestrial wildlife communities, habitat, human health, and developing sustainability. Its action plans cover the Lake's watershed, and it notes the importance of considering the eight areas of concern around the Lake. Four of these are in Canada and another, on the St. Mary's River, is shared by Canada and the U.S.

3.6.11 However, as a document prepared by various partners, the plan itself does not commit the federal government or any other partner to action. It identifies Environment Canada as a lead agency for more than 30 of the planned actions, but in many cases the Department has not allocated resources to those actions or made any commitments to act. And although the plan identifies what should be measured, no one has made a commitment to do the measuring.

3.6.12 Planning for Lake Huron. So far, the federal government has not begun to plan for action in the Lake Huron watershed. The Michigan Department of Environmental Quality, with the support of the U.S. Environmental Protection Agency, launched a Lake Huron initiative in 1999. Canada's federal involvement in the initiative has been limited to Environment Canada's participation on the steering committee and development of graphics of the Lake Huron watershed. The Ontario Ministry of Natural Resources has also participated. The Lake Huron and Georgian Bay watershed includes the Spanish River and Severn Sound areas of concern as well as Collingwood Harbour, which was removed from the list of areas of concern in 1994. The federal government has not begun to consider the

major threats to the Lake, priorities for action, cleanup and pollution prevention activities, or the way it would measure progress in the watershed surrounding Lake Huron.

3.6.13 Planning for Lake Erie. In 1993, the U.S. Environmental Protection Agency and Environment Canada began the initial phases of planning for the development of a lakewide management plan for Lake Erie. The first report of the Lake Erie plan was prepared in 2000, and an update is planned every two years.

3.6.14 So far, the main accomplishment of the Lake Erie plan has been to identify the critical pollutants that require priority action, namely, mercury and PCBs. The plan cites air deposition as the largest source of mercury; contaminated sediments contain the greatest mass of mercury. Land use practices and nutrients in runoff are cited as the main human threats to the future state of the Lake Erie ecosystem.

3.6.15 At present, the problem definition phase of the Lake Erie plan is just nearing completion, so objectives have been established only for mercury and PCB reductions; no indicators at all have been established. The plan lists several ongoing projects in the Lake Erie watershed, but it does not identify how their progress will be monitored.

3.6.16 The Lake Erie plan emphasizes the importance of an ecosystem approach to understanding the sources of pollutants and developing action plans. It also notes that there are 12 areas of concern on the Lake but does not identify their significance to the watershed (see case study, Phosphorus in Lake Erie: Do we need a new plan?).

3.6.17 Planning for Lake Ontario. Stage 1 of the Lake Ontario plan was completed in May 1998. It identifies several toxic chemicals, including PCBs, DDT, mirex, dioxins, and furans, as the main contaminants in the Lake. The plan cites the main tributaries that carry each of these chemicals into the Lake. It notes that the U.S. tributaries are the main sources of PCBs and dieldrin, while Canadian tributaries contribute more DDT, dioxins, and mirex.

3.6.18 The plan also estimates that sources of these chemicals upstream pollute Lake Ontario more than sources in the basin, though these estimates are considered preliminary.

3.6.19 The Lake Ontario plan identifies the key sources of critical contaminants, but it does not set priorities for action, outline action plans, or suggest how actions should be monitored. It identifies the areas of concern around the Lake but does not describe their importance to the quality of the Lake itself. And it focusses on the effects of critical contaminants on water quality; it does not consider their effects on the broader ecosystem.

Phosphorus in Lake Erie: Do we need a new plan?

This case study demonstrates the importance of developing and acting on lakewide plans.

From the 1950s to the 1970s, Lake Erie was highly polluted, mostly by phosphorus. Massive growths of algae were killing fish, degrading beaches, and clogging water intakes. The phosphorus was attributed to industrial wastes, agricultural runoff, and municipal wastewater containing household laundry detergents.

Lake Erie's shallow waters made it particularly vulnerable to land use changes and pollutants. Among the Great Lakes, the Lake Erie watershed had the fastest-growing population, the largest proportion of land devoted to agriculture (67 percent), and the highest proportion of shoreline in use. It also had by far the largest amounts of suspended solids entering the Lake from its tributaries—6.5 million tonnes a year, compared with 1.6 million tonnes a year for Lake Ontario, and less for the other lakes.

Early success in reducing phosphorus. In 1970, a study of Lake Erie by the International Joint Commission concluded that amounts of phosphorus entering the Lake had to be reduced. Canada and the U.S. signed the Great Lakes Water Quality Agreement in 1972; among other things, it specifically included programs and requirements to reduce phosphorus loadings into Lake Erie.

The Great Lakes Water Quality Agreement of 1978 identified new reduction requirements. These were revisited in a supplement to the Agreement in 1983, which committed the parties to reduce by another 2,000 tonnes the amount of phosphorus entering Lake Erie. Canada's share of this reduction was 300 tonnes. The amendment also called for phosphorus reduction plans and committed both governments to prepare inventories of treated areas, develop watershed modelling, and improve the measuring of phosphorus in tributaries.

During that period, Canada and the U.S. took several actions. They spent over \$7.6 billion to build or upgrade municipal sewage treatment plants, limited the amount of phosphorus allowed in household laundry detergents, and encouraged farmers to practice conservation tillage and manage fertilizers better. As a result, the annual releases of phosphorus into the Lake by municipalities and industry were reduced from 28,000 tonnes in 1968 to just over 11,000 tonnes in 1985. Concentrations in the open lake responded accordingly.

The problems are not resolved. Recent evidence shows that the gains of the 1970s and 1980s are being reversed. Phosphorus levels in the western part of Lake Erie have been higher than anywhere else in the basin, at concentrations higher than the target in each of the last six years for which data are available—in 2000, roughly three times higher. A 1998 workshop concluded that “phosphorus levels are far from under control.”

The contribution to these levels by each source of phosphorus is not known, although information for Ontario suggests that farming contributes over 300 times more than municipal sources. The amount of phosphorus entering Lake Erie from each source has not been estimated since 1994. Without this information, changes in phosphorus levels from different sources may go undetected. The International Joint Commission noted in 1998 that it was impossible to make these estimates because recent budget cuts had caused the “wholesale elimination of surveillance and monitoring programs.”

It's time to complete the Lake Erie management plan. The primary management tool for responding to the phosphorus problem in Lake Erie is the lakewide management plan. While the 1970s and 1980s saw significant progress, we stand to wash away those gains. Effective, ongoing planning for the Lake, carrying out the planned actions, and monitoring the results are the surest way to recoup our investment and ensure the long-term beneficial uses of the Lake.

When will the federal government have lakewide management plans?

3.6.20 Almost 14 years after the federal commitment to develop lakewide management plans, most of them are still in their early stages of development (Exhibit 3.5). Most do not yet recommend actions to be taken. In our opinion, the engagement and support of federal departments in the lakewide management plan process, aside from Environment Canada, has been uneven and ad hoc. It is not evident when the plans will be completed or whether the government will use them to strategically direct its actions and those of others to restore the Great Lakes.





































Planning for the St. Lawrence River

3.6.21 The federal government is not required to prepare a comprehensive plan for the St. Lawrence River comparable in intent to lakewide management plans (Exhibit 3.5). There are no plans developed explicitly to improve water quality in the St. Lawrence River. We audited how the federal government, working with the Quebec government and other partners, is planning to address it in future actions.

3.6.22 The first two phases of the St. Lawrence Action Plan addressed significant water quality issues. Phase I (1988–1993) of the Action Plan aimed to reduce discharges from major industrial sources, and it developed a *State of the Environment Report on the St. Lawrence River*, among other things. Phase II (1993–1998) expanded those efforts to additional industrial plants.

3.6.23 **Risks to the St. Lawrence River are well known.** In 1996 the St. Lawrence Action Plan published the *State of the Environment Report on the St. Lawrence River*, which described the leading sources of water pollution along the river. These were discharges from municipal and industrial facilities and atmospheric inputs from various sources. The main pollutants in the river were persistent organic pollutants such as pesticides, PCBs, dioxins, and furans from agricultural, petroleum, and chemical plants and from pulp and

Exhibit 3.5 The state of federal management plans for the Great Lakes and the St. Lawrence River

Elements	Lake Superior	Lake Huron	Lake Erie	Lake Ontario	St. Lawrence River
Sources of contamination identified					Information is dated
Priorities established					
Action plans developed					
Monitoring identified					
Areas of concern considered					Not applicable
Ecosystem approach used					
Plans to guide actions developed					
 Yes  In part  No					

paper mills. Inorganic pollutants, including heavy metals such as mercury and chromium, were also significant pollutants.

3.6.24 According to the 1996 report, flows from the Great Lakes were responsible for 44 percent of the river's inorganic contamination and 40 percent of organic contamination. By contrast, industrial effluents discharged directly into the St. Lawrence were responsible for 14 percent of inorganic contamination and just 3 percent of organic contamination. The remainder come from tributaries and other sources, such as the atmosphere. These data were from 1991, before some of the effects of the St. Lawrence Action Plan would have shown up in the environment.

3.6.25 Reporting by the Action Plan on the state of the environment was dropped after Phase II. In 1998 an update on water quality in the St. Lawrence River was produced, using data to 1996. However, much of the information is not comparable with information in the 1996 report, due to differences in the methods of analysis and the indicators used. The few comparisons that can be made show a trend toward better water quality. This is mainly due to improved sewage treatment and less-toxic emissions from pulp and paper mills.

3.6.26 **Current planning not explicitly related to water quality information.** The 1996 *State of the Environment Report on the St. Lawrence River* and its 1998 update did not identify which industries or municipalities should receive priority attention or what actions should be taken. Phase III of the St. Lawrence Action Plan, St. Lawrence Vision 2000, was not developed primarily on the basis of water quality information. Instead, as described in more detail in Section 7 of this chapter, priorities were established by working groups of officials from federal and provincial agencies, the academic community, and other organizations. As a result, the priorities cover much more than water quality.

3.6.27 Nonetheless, St. Lawrence Vision 2000 does include components that address water quality. It has earmarked \$86.8 million from 1998 to 2003 for projects that include mitigating the negative effects of farm practices on water quality. Another \$31.4 million is allocated for various projects to reduce pollution from industrial and urban sources. As with other projects in St. Lawrence Vision 2000, these action commitments and spending by each agency are tracked and made available to the program's officials.

Conclusion

3.6.28 The federal government, with its partners, has done a lot of work to understand the risks to water quality in the Great Lakes and the St. Lawrence River. But it needs to do much more. The presence of critical contaminants is generally known, but not always their sources. The available information does not show what threatens the basin most and, therefore, where the federal government should focus its efforts.

3.6.29 The government has set some priorities for action, but it is not always clear that they reflect the biggest risks. Plans throughout most of the basin, if they exist, tend to be weak. The federal government has not established good

indicators of the state of the environment and used them to measure the effects of its programs on the basin's ecosystems.

3.6.30 The government knows less about the sum than the parts. Collectively, the lakewide management plans and the planning in St. Lawrence Vision 2000 provide a lot of information on contaminants in the Great Lakes and the St. Lawrence River. But they do not show a clear picture of the state of the basin overall. Without a good understanding of what is happening in the basin, it is difficult to set priorities or develop effective plans.

Our audit objectives and main findings

Holding the federal government to account		
① Has the government fulfilled its commitments?	Commitments	Results
	Develop water resource management plans for watersheds of significant national interest.	<p>The government has completed a plan for Lake Superior; however, it has not allocated resources to implement the over 30 federal actions identified in the plan.</p> <p>It does not have a lakewide management plan for Lake Huron and has incomplete lakewide management plans for lakes Erie and Ontario.</p> <p>It does not have a plan for the St. Lawrence River; however, planning elements are present in St. Lawrence Vision 2000.</p>

3.7 The Absence of a Federal Fresh Water Strategy

The issue

3.7.1 The waters of the Great Lakes and St. Lawrence River basin face many threats, ranging from pollution by local industries and municipalities to global climate change. Today, many Canadians worry about the harmful effects of urban runoff, agricultural manure, pesticides, and other pollutants. Proposals to export water from the Great Lakes and elsewhere in Canada—and the reactions they generate—are further reminders of how complex the issues surrounding Canada's supply of fresh water have become. Many of the federal government's programs and activities touch on some aspect of water management, pointing to the need for clear federal priorities for the management of fresh water in Canada and a strategy to carry them out.

The federal role

3.7.2 Federal commitments to fresh water. At least nine pieces of federal legislation establish a host of responsibilities for the federal management of fresh water. And at least six federal departments play an active role in the government's commitment to a safe and secure water supply in the Great Lakes and the St. Lawrence River. Environment Canada, as the lead, is the most active. Other departments are Fisheries and Oceans, Health Canada, Natural Resources Canada, Agriculture and Agri-Food Canada, and Foreign Affairs and International Trade. These departments have a large collective commitment to the Great Lakes and St. Lawrence River basin.

3.7.3 In 1987 the federal government released its Federal Water Policy. Its aims were to encourage the efficient and equitable use of fresh water and to protect and enhance water quality.

Our audit questions

3.7.4 What are the federal government's priorities for fresh water? Do its programs and activities in the basin reflect its priorities? Has it implemented the Federal Water Policy?

The story

The Federal Water Policy

3.7.5 In 1987, the federal government published its Federal Water Policy commitment to protect and enhance the fresh water resource. Reflecting the government's view that Canadians undervalued their water resource and therefore overused and abused it, the policy set out five broad strategies for water pricing, science leadership, integrated planning, legislative changes, and improving public awareness. With concerns emerging in Canada and internationally about the demand, availability, and use of water, these were important strategies.

The policy was set adrift

3.7.6 Several federal departments share responsibility for many of the issues that the policy covers. But the government has never explicitly allocated to any of them the responsibility or the funds to carry out the actions set out in the policy.

3.7.7 The Interdepartmental Committee on Water was to put the policy into effect. Established in 1968, this was a committee of senior officials from nine

Did you know?

- Year when consultations on a federal water policy were initiated: **1984**
- Number of years later that the Federal Water Policy was released: **3**
- Number of annual progress reports produced since 1988 by the Interdepartmental Committee on Water (the committee of senior government officials formed to co-ordinate federal actions and produce annual progress reports): **2**
- Number of federal departments with an active role in fresh water: **6**
- Number of years after the Federal Water Policy was issued that formal discussions began on clarifying federal roles and responsibilities for fresh water: **10**
- Date when the federal government will adopt the new draft freshwater strategy, the associated strategies, and departmental roles and responsibilities: **unknown**

federal departments involved in water issues. The government made the Committee the focal point to co-ordinate the actions in the water policy among federal departments and agencies. It was also to produce an annual report on the overall implementation of the Federal Water Policy, the strengths and weaknesses of that policy's delivery, and areas for future examination.

3.7.8 The Committee has tabled only two progress reports, in 1990 and in 1994. Otherwise, it has been generally inactive. In 1993 the Auditor General criticized the Committee for not playing a stronger role in monitoring and co-ordinating departments' actions under the Federal Water Policy. However, the Committee stayed inactive for close to four years, and its progress reports on the policy's implementation do not cover events past 1992.

3.7.9 Environment Canada intended to carry out many of the actions in the Federal Water Policy through its Inland Waters Directorate. In the fall of 1993, however, the Directorate was disbanded and its large staff dispersed among the remaining services of the Department. The Department's focus on water was lost. The next year, Environment Canada carried out an internal review to determine whether and where it was meeting its various responsibilities for water. Among the review's findings were the following:

- Water quality activities in the regions, although dispersed, could be identified. At headquarters they were much less apparent.
- There was no national focal point for international matters related to fresh water.
- The Department's regional offices were conducting hydrological analyses, but their capability varied among regions. And activities tended to favour specific local priorities. There was little national effort to systematically apply new methods of analysis and modelling.
- Groundwater programs were operating at each end of the country, in the Department's Pacific and Atlantic regions. But there was no national leadership or co-ordination of their activities and no efforts to develop and implement national strategies or guidelines for groundwater management.
- Research on contaminants in groundwater had been transferred to two research institutes whose core expertise in groundwater was eroding.

3.7.10 In the mid-1990s, other departments also scaled back their commitments to water management. Health Canada found it harder to fund its program. Fisheries and Oceans advised Environment Canada that it would scale back many activities in the Great Lakes. It had become unclear which of the five strategies or 25 policy statements and related activities in the water policy were still priorities.

New initiatives do not offer direction

3.7.11 In 1997, the inactive Interdepartmental Committee on Water began formal discussions to clarify federal roles and responsibilities for fresh water. In 1998, Environment Canada completed a draft discussion document, *Towards a Federal Freshwater Strategy*. This document was intended to lead to

an update of the 1987 Federal Water Policy. It was the subject of extensive consultations in the federal government and with the provinces. The Federal Water Policy was not updated.

3.7.12 In 2000, a second draft discussion paper was prepared, *Fresh Water—A Federal Discussion Document*. This paper on fresh water updated the 1987 Federal Water Policy and set out 25 new or revised policy statements.

3.7.13 While the discussion paper describes potential federal priorities and commitments, these largely restate or confirm current federal activities. The discussion paper does not offer new direction or priorities for the federal government, nor does it identify or recommend funding levels for any of the 25 policy statements. Its status remains unclear.

3.7.14 Environment Canada reports that recent attempts to develop a freshwater strategy have focussed on enhancing collaboration with the provinces and territories in the conservation and protection of water. According to Environment Canada, this has the potential to form the basis for a national strategy, of which a federal strategy would be a component. Throughout this evolution of events there has been, in our opinion, a lack of a consistent and clear strategy for updating the Federal Water Policy. At the conclusion of our audit, the timetable for updating the policy and the associated departmental roles and responsibilities, whether as part of a national strategy or not, was unclear.

Conclusion

3.7.15 The relative importance of various water issues can change over time. Without established and articulated priorities, programming and funding may not address the issues of greatest importance. Throughout the 14-year life of the Federal Water Policy, the government has never formally identified its top priorities or decided how it would put them into effect in Canada's freshwater bodies. It has not reported any progress made since 1992 toward implementing its Federal Water Policy.

Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?

Commitments

Implement the 1987 Federal Water Policy.

Results

The government has issued no updates on progress made since 1992 toward implementation of its water policy.

It has undertaken minimal efforts to affect water pricing, a goal of the policy.

It released its federal strategy to prohibit bulk water removals in 1999 and has partially completed some elements.

Our audit objectives and main findings

Assessing the government's performance

❷ Has the government applied good management practices?	Strengths	Weaknesses
	<p>The 1987 Federal Water Policy is broad in scope and includes goals and a series of action items for each objective.</p> <p>The 2000 draft discussion paper on fresh water is a restatement or confirmation of current federal activities.</p>	<p>The policy does not have a formal process for setting priorities.</p> <p>It does not include a plan for its implementation.</p> <p>The discussion paper does not offer new direction or priorities for the federal government.</p> <p>It does not prioritize the 25 policy statements.</p> <p>It does not commit any federal resources to specific actions.</p>
❸ Has the government established good governance structures?	<p>The Federal Water Policy addressed important public policy issues.</p> <p>The government published detailed progress reports on the policy in 1990 and 1994.</p>	<p>Responsibility is shared but the policy makes no explicit allocation of responsibility or funding among departments for specific actions.</p> <p>The policy does not make specific departments accountable for specific actions.</p> <p>The government has not published progress reports on the policy since 1994.</p>

AGRICULTURE

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AGRICULTURE

4.1 Overview and Recommendations



Source: Bruce Litteljohn

4.1.1 The Great Lakes and St. Lawrence River basin is home to most of Canada's prime farmland. The favourable climate permits intensive agriculture—corn, soybeans, tobacco, and tomatoes dominate crop production. Animal production includes dairy, hog, poultry, and beef operations.

4.1.2 Farming practices affect the environment in several ways. Farmers must cope with possible direct effects on their own land, such as loss of soil and contamination of well water. Their neighbours may be affected by water pollution or loss of wildlife habitat. The main water pollutants from farming are nitrogen and phosphorus from manure and fertilizer, sediment, bacteria from manure, and pesticides. Somewhere between 5 and 20 percent of the water used in the basin goes to agriculture, mainly for irrigation and the watering of livestock. Other impacts, such as greenhouse gas emissions and residues of some pesticides, show up in ecosystems around the Earth.

4.1.3 The agriculture industry has evolved dramatically from its early days as a supplier of food for nearby settlers to its current role as a highly dynamic global player. Today, the agriculture sector is poised for substantial growth. The federal government supports a target to increase Canada's share of world agricultural exports to 4 percent by 2005, an increase of more than 40 percent from 1986. This will put significant pressure on the soil and water in the basin and increase the already strong trend toward more intensive farming.

4.1.4 Farms in the basin are close to both rural and urban population centres. This increases the risk of negative effects on the environment and human health, and gives rise to concerns about the dust, noise, and odours of farming. Public concern has become an important driving force for government and the industry to improve environmental management in agriculture.

4.1.5 The proximity of farmland to cities has also led to the withdrawal of agricultural land from production. In Canada, the supply of dependable agricultural land declined by 16 percent between 1901 and 1996. A disproportionate share of this loss was around the urban centres of southern Ontario, an area that boasts more than half of Canada's best farmland. Further losses are inevitable as urban areas continue to expand.

The federal role and mandate

4.1.6 Under the Canadian Constitution, both the federal and provincial legislatures may enact laws related to agriculture. The federal government has exercised this authority mainly in international trade, as well as national co-ordination and leadership in developing strategies, programs, and standards. But it also overlaps somewhat with the provinces' initiatives in research,

transfer of technology to farmers, financial incentives, promotion of best practices, and income support for farmers. Agreements can be negotiated to define the respective responsibilities in a particular program.

4.1.7 The regulation of farm practices has so far been primarily a provincial and municipal activity; the federal government plays an active role mainly in regulating pesticides. The other regulatory tools the federal government can use include the provisions to protect fish habitat under the *Fisheries Act* and those for control of toxic substances under the *Canadian Environmental Protection Act*. Some controls on agricultural activities (for example, separation distances to wells and restrictions on manure spreading) have been imposed by provincial regulations and municipal bylaws.

4.1.8 Three federal departments play important roles in agriculture: Agriculture and Agri-Food Canada, Environment Canada, and Health Canada's Pest Management Regulatory Agency. Agriculture and Agri-Food Canada has funded research, provided funds to environmental programs, and led policy development. Through the Great Lakes 2000 Cleanup Fund, Environment Canada has funded projects to reduce agricultural sources of water pollution, among other sources.

4.1.9 Depending on the issue, the federal government may work with several other players: provincial governments, municipal governments, universities, producer organizations, and farmers themselves. The federal and provincial governments have clearly separate responsibilities in some areas, such as international agreements, but share them in others.

What we audited

4.1.10 We examined the impacts of manure and fertilizer on soil and water (Subsection 4.2) and how the federal government contributes to managing soil erosion (Subsection 4.3). We then looked at how well Agriculture and Agri-Food Canada assesses the environmental impacts of its policies and programs that support economic goals but that may have unintended consequences for the environment (Subsection 4.4). Next, we looked at how effectively the federal government works toward achieving environmentally sustainable agriculture in the basin (Subsection 4.5).

4.1.11 We examined the different roles of the federal government—promoting stewardship, establishing regulations, conducting and co-ordinating research, and monitoring the state of the basin. We looked at how well it has established its own roles and responsibilities and helped to define those of other players.

What we found

4.1.12 Overall. The federal government is attempting to manage the environmental impacts of agriculture. It is confronting long-standing problems and must also respond to new demands. It has laid part of a foundation for effective management, such as the clear priority it assigns to improving the environmental sustainability of agriculture, but it has left some critical gaps. It has not sorted out who is going to do what. Information is out-of-date. Some action plans have not been developed. Results of key programs are not measured. And federal programs and policies are not working well together.

4.1.13 These are important gaps. Some of agriculture's impacts are growing and damaging the basin's environment. Effective management is needed to reverse the trends.

4.1.14 Manure and fertilizer management. Livestock operations in Ontario and Quebec generate enough manure to equal the sewage from over 100 million people. And the problem of how to manage it safely is getting worse. The misuse of manure and fertilizer on farmland has damaged the ecosystem of the basin.

4.1.15 Despite the efforts of Agriculture and Agri-Food Canada, Environment Canada, the provinces, and agricultural organizations over the last decade, nutrients are accumulating in soil on farms in the basin. Their environmental impacts are increasing. Roughly 70 percent of Ontario and Quebec farmland had much higher nitrogen levels in 1996 than in 1981. On more than 30 percent of farmland, the levels of residual nitrogen pose a risk of water contamination.

4.1.16 Many producers need to improve their farming practices. Agriculture and Agri-Food Canada and Environment Canada have offered financial incentives and promoted good practices to encourage good management of manure. The federal government has not determined what effect these measures have had on the quality of the environment. There are federal objectives for controlling nitrogen and phosphorus but not bacteria. There is no plan that sets out clear responsibilities for achieving the objectives. It is time for the federal government to rethink its approach, recognizing that this is a long-term problem.

4.1.17 Agriculture and Agri-Food Canada has supported several initiatives for research and technology transfer, including the Hog Environmental Management Strategy. It is not clear yet whether this mix of initiatives will produce the strategic, well-co-ordinated research effort that is needed.

4.1.18 Soil erosion. Close to half of Ontario's agricultural soil is at risk of washing away faster than new soil can form. More than 10 years of federal and provincial government intervention have slowed soil erosion somewhat, but at a rate that could take 90 years to bring soil loss down to sustainable levels. Agriculture and Agri-Food Canada has identified overall objectives for reducing soil erosion, but it has no action plan detailing how it expects to achieve them.

4.1.19 Baseline soil information is essential to good land-management decisions, but the present data are becoming more outdated and less useful as time passes. Today, little or no new soil data are being collected. The federal and provincial governments have no formal mechanism for co-ordinating data management.

4.1.20 Assessing the environmental impacts of policies and programs. Agriculture and Agri-Food Canada spends far more money on agricultural programs in the basin such as crop insurance and disaster assistance than it spends directly to reduce the impacts of agriculture on the environment. Faced with potentially conflicting goals, the Department needs to carefully

and explicitly consider the environmental implications of its policies and programs. The Department has failed to fully meet its commitments to evaluate the environmental consequences of existing and planned policies and programs.

4.1.21 In 1996, the federal government made a commitment to Parliament to have departments assess the environmental impacts of their existing tax measures, grants, and subsidies. Agriculture and Agri-Food Canada has made limited progress in the study of its existing measures, and has not completed it. Nor has it reported on the status of this review.

4.1.22 In 1990, Cabinet directed federal departments to assess the environmental impacts of their new policies and programs. Agriculture and Agri-Food Canada has no systematic, formal process to conduct the assessments. As a result, the Minister cannot be assured that the Department is complying with the Cabinet directive.

4.1.23 The *Farm Income Protection Act* requires Agriculture and Agri-Food Canada to carry out environmental assessments of its income support programs for farmers, which include the most costly programs in the basin. Several major programs are excluded from the requirements, but there are gaps nonetheless in the Department's compliance with the requirements. The Department does not attempt to monitor the actual impacts of its policies on the environment to determine whether its predictions in its assessments have been accurate.

4.1.24 Agriculture and Agri-Food Canada does research to increase animal and crop production. But it has not evaluated its research enough to know the impact on environmental sustainability. The information used to select individual research projects does not have enough details on the potential environmental effects. We also found that evaluations of some of the Department's broad research areas applicable in the basin did not take account of the possible environmental effects. Evaluations of the research centres focus on the economic impacts of research and whether the needs of the agriculture industry have been met.

4.1.25 Working toward environmentally sustainable agriculture. Farming practices in the Great Lakes and St. Lawrence River basin are having effects on the environment that cannot be sustained. While some impacts such as soil erosion are improving slowly, others such as water contamination and loss of wildlife habitat are getting worse. In addition to soil erosion and pollution from manure and fertilizer, the federal government must manage issues such as the risks in using pesticides, the loss of biodiversity, and greenhouse gas emissions.

4.1.26 The federal government has used financial incentives and promoted good farming practices to influence the way farmers manage the environmental impacts of their operations. It has met with some success—practices such as conservation tillage that reduce soil erosion and can benefit farmers economically are now widely used. But it has not evaluated the

impact of its environmental programs on the quality of the environment in enough detail to say whether the programs are making sufficient progress.

4.1.27 The federal government shares responsibility with the provinces for achieving sustainable agriculture and, increasingly, with private industry. There is no up-to-date framework of roles and responsibilities for use in working with the provinces to set and achieve environmental objectives for agriculture in the basin. Agriculture and Agri-Food Canada has not integrated its policies and programs in the basin effectively with those of its federal and provincial partners.

4.1.28 Over the last decade, funding for agricultural environmental programs has dropped, and the focus has changed to educating the public and supporting voluntary groups. It is not clear who is responsible for what long-term outcomes.

4.1.29 Agriculture and Agri-Food Canada needs to improve the way it sets priorities in agricultural research, one of its prime tools. It also needs to do a better job of directing program funds to where they will do the most good. The Department could make its policies and programs more effective by coupling them—for example, linking income support programs to environmental programs.

4.1.30 The Department has developed agri-environmental indicators that are an impressive synthesis of several years' work; they play a key part in managing environmental issues. At the end of our audit, the Department had not allocated the resources and expertise needed to sustain this reporting framework.

4.1.31 The federal government has not said how it will achieve sustainable agriculture in the basin. It has identified some measurable objectives for the sector, with clear deadlines, but has not said how its own activities will contribute to those objectives.

What we recommend

4.1.32 Our findings show that the federal government, with those who share responsibility, must take greater action to make agriculture environmentally sustainable in the basin. Better evaluation, clearer roles, targeted action, and clearer and measurable commitments are needed.

4.1.33 Agriculture and Agri-Food Canada and Environment Canada should evaluate the impact of their agri-environmental programs on the basin's environment, particularly in areas where environmental damage is increasing or progress is slow. They should use this information to re-evaluate the current mix of policies and programs, including whether activities should be more integrated with the basin ecosystem initiatives.

4.1.34 Agriculture and Agri-Food Canada should ensure that clear roles and responsibilities are established, and measurable commitments and clear action plans spelled out, for achieving environmentally sustainable agriculture in the basin. It should involve Environment Canada and the provincial governments in doing this.

4.1.35 Agriculture and Agri-Food Canada should ensure that adequate information, including agri-environmental indicators and soil data, is available to guide action and measure progress toward sustainable agriculture in the basin.

4.1.36 Agriculture and Agri-Food Canada should ensure that its research priorities correspond to its environmental objectives and support the development of its policies. It should also ensure that its environmental objectives are considered in selecting and evaluating its research.

4.1.37 Agriculture and Agri-Food Canada should periodically review the environmental impacts of federal–provincial income support programs and conduct environmental assessments before putting new programs into effect.

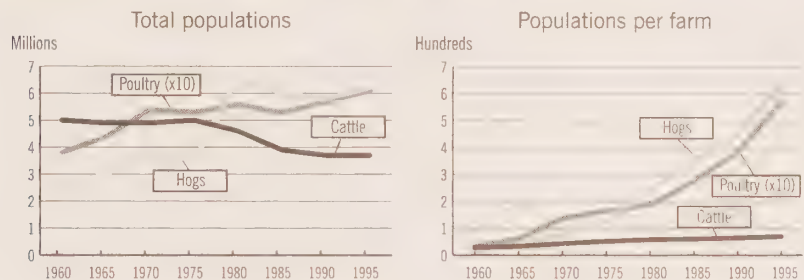
(See Summary for departmental responses.)

4.2 Manure and Fertilizer Management

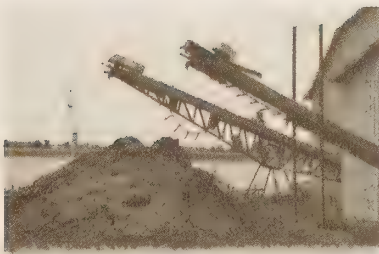
The issue

4.2.1 Livestock operations in Ontario and Quebec generate enough manure to equal the sewage from over 100 million people. And the problem of how to manage it safely is getting worse. While the number of cattle is slowly decreasing, hog and poultry numbers are growing, particularly the number of animals on each farm (Exhibit 4.1).

Exhibit 4.1 Farm animal populations in Ontario and Quebec



Source: Statistics Canada



4.2.2 Manure and commercial fertilizer spread on agricultural land provide valuable plant nutrients, especially nitrogen and phosphorus. If they are stored or used in the wrong way, however, or if more is applied than the plants and land can absorb, nutrient levels build up in the soil and can contaminate groundwater or surface water. Inorganic nitrogen, phosphorus, and bacteria are the primary pollutants from manure. Between 1988 and 1998, a total of 274 manure spills were reported in Ontario. Fifty-three of these spills resulted in fish kills, primarily due to the ammonia in liquid manure. Bacteria in manure are believed to be the source of the water contamination in Walkerton, Ontario that caused seven deaths and made 2,000 people sick.

4.2.3 At the mouth of the Yamaska River in Quebec, concentrations of phosphorus and inorganic nitrogen are higher than in any other tributary of the St. Lawrence River. The main cause is the growth in livestock production in the watershed—30 percent over the last 20 years. And the Yamaska River is not an isolated case. Many of the basin's rivers in southwestern Ontario and Quebec have concentrations of phosphorus higher than amounts set as provincial objectives for water quality. Seven of the eight watersheds in Canada with the highest counts of coliform and fecal coliform bacteria are in the basin.

The federal role

4.2.4 Agriculture and Agri-Food Canada has focussed on conducting research on nutrient management and promoting good farming practices in the basin. Environment Canada has funded projects in several watersheds to reduce water pollution from manure and fertilizer. Under the Great Lakes Water Quality Agreement with the U.S., Canada has committed to reducing phosphorus levels in the Great Lakes.

4.2.5 Both Ontario and Quebec have guidelines and, in some cases, legislation and regulations to control the storage and use of manure and fertilizer. Ontario has not regulated these activities, but recently proposed legislation on nutrient management. Municipalities control building permits, zoning provisions, and distances between buildings. Some municipalities have gone further and require farmers to prepare nutrient management plans or attend mandatory public meetings.

Our audit question

4.2.6 How well has the federal government contributed to managing the problems of soil and water contamination caused by spreading manure and fertilizer?

The story

A growing problem for human health and the environment

4.2.7 In the 1970s, scientists recognized the problem of soil and water contamination by agricultural operations around the Great Lakes. They documented the causes and the problem areas, pointing to the need to control nutrient runoff from farms in order to achieve the objectives of the Great Lakes Water Quality Agreement.

4.2.8 The increasing use of mineral fertilizer in the past to boost crop production has contributed to the contamination. Crop production in Canada has doubled in the last 50 years, on roughly the same amount of cropland. Fertilizer sales in Ontario and Quebec grew from 1.01 million tonnes in 1968 to a peak of 1.66 million in 1985, dropping to 1.26 million tonnes in 1998.

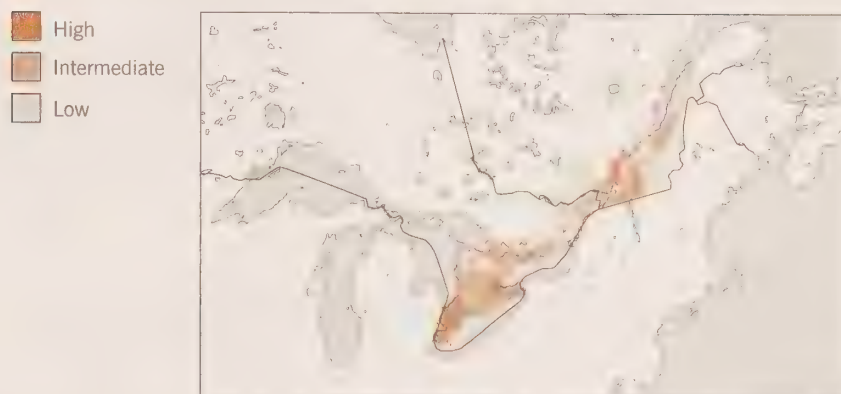
4.2.9 A more recent cause has been the increasing concentration of livestock production. Much of the manure these animals generate is spread on agricultural land. Manure can have a greater impact on downstream water than fertilizer because manure is applied in a higher concentration to a smaller area.

4.2.10 The result is that inorganic nitrogen is accumulating on farmland in the basin. Roughly 70 percent of Ontario and Quebec farmland had much higher nitrogen levels in 1996 than in 1981—and much of it above levels that cause groundwater and surface water contamination (Exhibit 4.2). Runoff from the soil has also increased nitrogen levels in the water on up to 77 percent of the basin's farmland, and downstream.

4.2.11 A survey of Ontario wells in 1992 found that the water in 14 percent of them had nitrate levels above the drinking water standard. High nitrogen levels in drinking water can cause "blue baby" syndrome, or methemoglobinemia, in bottle-fed infants and in young animals. Over many years, adults who drink nitrate-contaminated water can develop kidney or spleen problems.

4.2.12 Also of concern, 34 percent of the surveyed wells had coliform bacterial counts above the acceptable level. Surveys of rural wells in Quebec told a similar story. The growing rural population off farms compounds the potential health impacts of this contamination.

Exhibit 4.2 Risk of water contamination by nitrogen on farmland



Source: Agriculture and Agri-Food Canada

4.2.13 The misuse of manure and fertilizer on farmland has damaged the ecosystem in the basin. Long-term exposure to high levels of inorganic nitrogen has contributed to the decline of amphibians in southern Ontario. And manure is a major source of greenhouse gas emissions.

The government has assessed ecosystem limits and identified objectives

4.2.14 Responding to a 1995 report of the Standing Committee on Environment and Sustainable Development, a working group of people from federal science departments began a detailed scientific assessment of the impact of nutrients on the Canadian environment. It described the impacts of agricultural sources of nutrients. The assessment and related work provide a base for understanding how an increase in nutrient releases affects the basin's ecosystem.

4.2.15 Clear and measurable objectives are essential to managing performance. In its report on agri-environmental indicators in 2000, Agriculture and Agri-Food Canada presents performance objectives for nitrogen control. They include preventing a net increase in nitrogen on Canadian farmland over time, and ensuring that there is little or no risk of water contamination by nitrogen on any Canadian farmland. These objectives are not being met.

4.2.16 In its sustainable development strategy released in 2001, the Department has included a similar objective for phosphorus control. This objective has not been linked to the phosphorus control objectives of the Great Lakes Water Quality Agreement. The Department has not said who is responsible for meeting the objectives for nitrogen and phosphorus control. Nor has it published a performance objective or target for controlling bacterial contaminants from manure.

Many farmers are not using best practices

4.2.17 To reduce soil and water contamination, many farmers will have to improve the way they manage manure and fertilizer. The federal government

Did you know?

- Number of Canadians it would take to produce sewage equal to the manure from livestock in Ontario and Quebec: **over 100 million**
- Percentage increase in cows per farm between 1961 and 1996: **147**
percentage increase in hogs: **2,451**
percentage increase in poultry: **1,610**
- Number of Canadians who died after contamination of drinking water in Walkerton, Ontario: **7**
number made ill: **over 2,000**
- Percentage of basin farmland that had much higher nitrogen levels in 1996 than in 1981: **70**
- Amount Environment Canada spent from 1990 to 1999 to reduce water pollution from rural sources in Ontario: **\$4.6 million**
- Amount Agriculture and Agri-Food Canada spent in the basin from 1997 to 1999 under its National Soil and Water Conservation Program: **\$2.5 million**
- Number of departmental nitrogen control objectives that are being met: **0**
number of phosphorus control objectives met: **0**

has tried to influence farmers' behaviour by offering financial incentives and promoting good farming practices. It has also made limited use of regulations.

4.2.18 Legislation and regulation. No federal legislation or regulations explicitly prohibit pollution by agricultural nutrients. To a limited extent, the government has enforced general federal regulations under the *Fisheries Act* in response to impacts of manure disposal in Ontario. Ontario farmers can be held liable and fined under two provincial laws—the *Ontario Water Resources Act* and the *Environmental Protection Act*. Quebec uses its own legislation and regulations.

4.2.19 The *Canadian Environmental Protection Act* specifically regulates phosphorus only in laundry detergents. Yet agriculture fertilizers account for 80 to 85 percent of all phosphorus used.

4.2.20 The scientific assessment of nutrients was not completed in time for Parliament to use it in considering new restrictions on nutrients when it reviewed the *Canadian Environmental Protection Act*. At the conclusion of our audit, the assessment had not yet been released. It may provide a basis for the government to control nutrients.

4.2.21 Financial incentives. The federal and provincial governments have offered farmers a series of incentives to improve the way they use fertilizer and manure. From 1990 to 1994, for example, qualified farmers were eligible to be paid the cost of building manure holding facilities. One project funded under the National Soil and Water Conservation Program paid Ontario farmers in the Grand River watershed to adopt practices that would reduce phosphorus levels in the water—at the time, higher than the provincial water quality objective almost everywhere in the watershed. In 1999, program managers approved 83 projects whose costs totalled roughly \$900,000. (The total federal contribution through this program from 1997 to 1999 was \$2.5 million.)

4.2.22 The ecosystem programs in the basin have paid relatively little attention to manure problems. Over the last decade, Environment Canada provided \$4.6 million for a variety of farm projects around the Great Lakes to reduce water pollution, mainly due to phosphorus. In Quebec, the federal agriculture component of St. Lawrence Vision 2000 does not explicitly consider manure; however, a few small watershed management projects were funded under the program's community interaction component.

4.2.23 Promoting best management practices. In the early 1990s, Agriculture and Agri-Food Canada, provincial agriculture ministries, and farm organizations worked together on guides to best management practices. Environment Canada has also funded pamphlets telling farmers how, for example, to minimize the impact of manure on fish habitat. Other efforts have included demonstration projects, farm tours, and recognition programs.

4.2.24 Has this combination of financial incentives and promotion of best management practices worked? In individual programs, it is hard to say. Environment Canada and Agriculture and Agri-Food Canada have kept information on their program activities such as numbers of people attending

workshops and numbers of pamphlets distributed. But they have not evaluated the programs' impacts on the environment. Surveys have shown that some farmers are unaware of how their activities affect water quality. A 1995 survey by Statistics Canada and Agriculture and Agri-Food Canada found that many farmers were still not using best practices (Exhibit 4.3). Some were not even complying with legal requirements to manage the inorganic nitrogen and phosphorus sources on their farms.

Exhibit 4.3 Many farms do not use best practices in manure and nutrient management

Best practices	Farm practices (1995)
Earthen storage for liquid manure should be used only when adequate sealing is ensured.	About 31 percent of farms that stored liquid manure used unlined lagoons.
Rain and snowmelt runoff from solid manure piles should be contained.	About 60 percent stored solid manure without roofs or containment.
Manure should be applied when the vigorous growth of crops can best use nutrients, buffer vegetation has grown, and drier soils can absorb liquid manure—not in late fall and winter.	Of the total amount of manure used, 5 percent is applied in the winter, 35 percent in the spring, 20 percent in the summer, and 40 percent in the fall.
Good decisions on nutrient use cannot be made without knowing the supply of nutrients in the soils. At a minimum, sandy soils should be tested every two years, and each field should be tested every three years.	Thirty-three percent of soil area for crops is not tested. Thirty percent of the remainder is tested every year, 50 percent every two to three years, 12 percent every four to five years, and 4 percent every six years or longer.
Adjusting the amount of commercial fertilizer to offset the nutrients present in manure is a good financial practice and prevents nutrient overloading.	Ninety-five percent of farms attempt to reduce the amount of fertilizer to offset the nutrients in manure.
Separating liquid manure from domestic water, rivers, and lakes by less than 30 metres is an extremely poor farming practice.	Four percent of liquid manure (at a minimum) is stored less than 15 metres from the nearest watercourse and less than 30 metres from wells used for domestic purposes.

Source: Statistics Canada and Agriculture and Agri-Food Canada

Steps toward a strategic approach to research on manure

4.2.25 Scientists at Agriculture and Agri-Food Canada research centres in the basin have contributed to more than 40 publications on nutrient management. The publications cover animal nutrition; manure storage; manure and fertilizer spreading; and nutrient impacts on soil, water, and air. In the last decade, the research gradually shifted from measuring and reporting concentrations of nutrients on farms to estimating the potential impacts of nitrogen and phosphorus on other parts of the ecosystem. That

research provides a scientific foundation for new farm management practices and can help farmers learn about new technologies (see Exhibit 4.4).

Exhibit 4.4 Using the Web to spread information about manure

Farmers can use the national Web site, ManureNet, to help them manage animal waste (<http://res2.agr.ca/initiatives/manurenet>). They will find acts, regulations, guidelines, provincial codes of practice, literature directed to farmers, and an inventory of research projects.

ManureNet has been largely the work of one federal employee. It is funded by a program that requires matching funds from industry—a stipulation meant to ensure that Agriculture and Agri-Food Canada spends its funds on what the industry wants most. ManureNet has not been successful in leveraging financial support from industry; it was due to run out of money after March 2001.

4.2.26 In 1997, the hog industry asked the Department to review its manure management activities to ensure that they complemented regulation with research, technology transfer, community education, and technical services. A joint review by the Department and the national hog industry recommended a long-term strategic approach to setting priorities in these areas.

4.2.27 A strategic approach is now even more important: over the last five years, Agriculture and Agri-Food Canada has used other organizations to decide who gets federal funds for research on manure and nutrients. Three separate industry-led committees are allocating federal funds to research and awareness projects in the basin. Universities are also using federal money for research on managing manure and its environmental impacts.

4.2.28 Recognizing that the pork industry was facing significant obstacles to growth because of its impact on the environment, Agriculture and Agri-Food Canada began the Hog Environmental Management Strategy in 1998. This was intended to support better co-ordination of research and technology development and to find effective, affordable solutions.

4.2.29 A successor program, the Livestock Environmental Initiative, was announced at the end of 1999. It provides \$1 million for research and development of technologies and environmentally sound practices that are technically ready to use. This one-year program was supposed to be matched by industry funding. Priorities included waste and manure management and control of greenhouse gases.

4.2.30 It is too early to say what impact these initiatives have had. We observed that there are ways for provincial adaptation councils, industry committees, and federal research centres to work together. It is not clear yet whether this mix of initiatives will produce the strategic, well-co-ordinated research effort that is needed.

Reports to Parliament not comprehensive or balanced

4.2.31 Federal departments are supposed to provide enough of the right kind of information for members of Parliament to assess whether departmental

programs are getting the expected results. We reviewed the last five annual reports to Parliament by Agriculture and Agri-Food Canada and Environment Canada, looking for references to managing nutrients and manure. We found little mention of it. The few references we did find reported positive results in managing manure and fertilizer, and did not discuss their growing impact on the environment.

4.2.32 Other recent documents—the report on agri-environmental indicators, *The Health of Our Soils*, and *The Health of Our Water*—described the results of current research, but they were not intended to assess the specific results of federal programs for manure and fertilizer management.

Conclusion

4.2.33 Despite the efforts of Agriculture and Agri-Food Canada, Environment Canada, the provinces, and agricultural organizations over the last decade, nutrients are accumulating in the soil on farms in the basin. Their environmental impacts are increasing. On more than 30 percent of farmland the levels of residual nitrogen pose a risk of water contamination.

4.2.34 Many producers need to improve their farming practices. Agriculture and Agri-Food Canada and Environment Canada have offered financial incentives and promoted good practices to encourage good management of manure. The federal government has not determined what effect these measures have had on the quality of the environment. It is time for it to rethink its approach, recognizing that this is a long-term problem.

4.2.35 There are now two good sources of information that support stronger policy measures: a science assessment of the impact of nutrients on the environment, and a report on agri-environmental indicators. There are federal objectives for controlling nitrogen and phosphorus but not bacteria. There is no plan that clearly shows responsibilities for achieving the objectives.

4.2.36 Agriculture and Agri-Food Canada has supported several initiatives for research and technology transfer, including the Hog Environmental Management Strategy. It is not clear yet whether this mix of initiatives will produce the strategic, well-co-ordinated research effort that is needed.

4.2.37 In their annual reports to Parliament, Agriculture and Agri-Food Canada and Environment Canada have not provided comprehensive or balanced information on this growing problem.

Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	No specific commitments.	Manure and nutrient problems are getting worse.

Assessing the government's performance

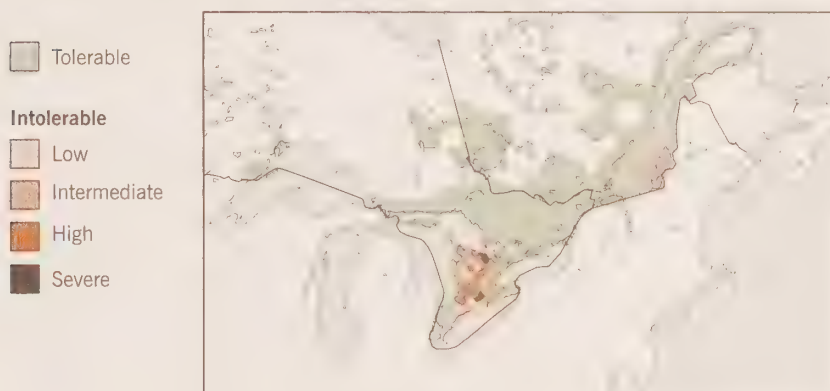
❷ Has the government applied good management practices?	Strengths	Weaknesses
	The government has identified indicators and performance objectives.	The government has not identified programming priorities and expected results.
	It has selected some appropriate tools.	The tools it uses are not adequate, and it has not evaluated their results.
❸ Has the government established good governance structures?	The government has documented issues well in special reports.	The government's key reports to Parliament are incomplete and unbalanced. Agriculture and Agri-Food Canada and Environment Canada need to improve co-ordination.

4.3 Soil Erosion

The issue

4.3.1 Close to half of Ontario's agricultural soil is at risk of washing away faster than new soil can form (Exhibit 4.5). Soil erosion has contributed to phosphorus management problems in the basin; soil particles carry phosphorus and other contaminants into the basin's rivers and lakes. More than 10 years of federal and provincial government intervention has slowed soil erosion somewhat, but at a rate that could take 90 years to bring soil loss down to sustainable levels.

Exhibit 4.5 Risk of soil erosion by water on cropland



Source: Agriculture and Agri-Food Canada

4.3.2 Farmers in the Great Lakes and St. Lawrence River basin have paid a high price. In 1986 the costs of soil erosion to Ontario farmers alone were pegged at \$157.3 million a year in lost yield, lowered crop quality, and higher tillage and fertilizer costs.

4.3.3 Soil erosion also affects people who live and work downstream. About 650,000 tonnes of sediment are deposited in the Great Lakes every year. In 1984 the estimated downstream costs in Ontario were as high as \$91.2 million—almost 90 percent of that in southwestern Ontario. These were the costs of losses to recreational fisheries; dredging of sediment from harbours; damage caused by sediment to inland lakes, reservoirs, and channels; water treatment; and removal of sediment from road ditches and municipal drains. Recent information suggests that the downstream costs of soil erosion are higher than the costs to farmers, but there is no up-to-date estimate of the costs at a provincial or regional level.

The federal role

4.3.4 Over the last decade, Agriculture and Agri-Food Canada promoted good soil management practices and monitored the status of the soil. Its programs to control soil erosion focussed on partnerships with provincial agriculture ministries, universities, and agricultural associations.

4.3.5 Both Canada and the United States have targeted erosion in their separate programs that support the Great Lakes Water Quality Agreement. In

the areas of concern (a feature of the Agreement), Environment Canada has promoted soil conservation with a range of partners—Ontario ministries, conservation authorities, producer associations, community organizations, and individual landowners.

Our audit questions

4.3.6 How has the federal government managed the fight against soil erosion, both on its own and with its partners? What lessons has it learned from earlier programs? Have the effects of those programs been sustained?

4.3.7 Because more than seven times as much land is at risk in Ontario than Quebec, we focussed our attention on Ontario.

The story

Changed federal approach to soil erosion

4.3.8 In its 1984 report, *Soil at Risk: Canada's Eroding Future*, the Standing Senate Committee on Agriculture, Fisheries and Forestry said that without quick action, Canadians could lose much of their agricultural land in the next 100 years. The Committee cited soil erosion as a main cause of land degradation.

4.3.9 The Senate report and similar assessments spurred the government to act. The late 1980s and early 1990s saw a series of programs in Ontario under federal–provincial agreements. Between 1990 and 1997, the federal and provincial governments spent roughly \$94 million to tackle a range of agri-environmental problems. They tried to control soil erosion by offering incentives to farmers, promoting best land management practices, and conducting research.

4.3.10 Since 1995, programs that involve industry in their administration and delivery have replaced federal–provincial programs and arrangements. In Ontario, the Agricultural Adaptation Council, a coalition of 52 agricultural, agri-food, and rural organizations, has been one of Agriculture and Agri-Food Canada's key partners.

4.3.11 From 1995 to 2000, under the more recent federal partnerships with the Ontario industry, environmental programs, including soil conservation measures, received \$11 million; another \$7.4 million is planned for 2000 to 2003. Environment Canada has also been involved—from 1990 to 2000 it funded soil conservation projects in nine areas of concern around the Great Lakes, primarily to prevent phosphorus pollution.

Conservation tillage has reduced soil erosion

4.3.12 When raindrops strike bare soil on cultivated land, they dislodge soil particles and wash them away. Conservation tillage and no-till practices have been a key tool in the federal effort to slow soil erosion in Ontario. These practices leave crop residues on the land, and the soil relatively undisturbed, reducing the amount of soil that is washed away by rain.

4.3.13 Virtually non-existent in the 1980s, by 1996 these methods accounted for 43 percent of tillage in southwestern Ontario. Farmers adopted them partly because of the perceived economic benefits and the availability of new



Conservation tillage disturbs the soil less than conventional methods of tilling.

Source: Agriculture and Agri-Food Canada

crop technology. But their real impact in reducing erosion has been monitored at only a few research sites. As a result, the federal government has not captured important lessons about how effective these methods have been or how to improve the results of its programs.

4.3.14 Future gains may be limited. Conservation tillage may produce only limited additional gains. Fewer farmers are converting their land to this method, perhaps because there is still little information about the costs and benefits of conservation tillage and other soil conservation measures. Some evidence suggests that conservation tillage may increase nitrate losses and pesticide pollution. And research by Agriculture and Agri-Food Canada shows that some conservation tillage of clay soils—in southern Ontario, for example—may even damage the soil and reduce yields. Research like this is necessary to understand where different conservation methods are most effective.

Slow progress over 15 years

4.3.15 Overall, better farming practices have had only a modest impact on soil erosion in Ontario. Between 1981 and 1996 there was a drop of only 7 percent in the amount of land where soil erosion was classed as “intolerable.” In 1996, 42 percent of cropland was still at “intolerable” (unsustainable) risk. Within the class of land at intolerable risk, the risks range from low to severe. Based on a 7 percent change over 15 years and assuming a constant rate of progress, it could take another 90 years to get soil erosion down to sustainable levels on all cropland in the province.

A soil erosion target with no action plan to meet it

4.3.16 One of Agriculture and Agri-Food Canada’s current objectives is to bring soil erosion down to a sustainable level on all cropland—that is, under six tonnes of soil per hectare lost to erosion each year. At the time of our audit, the Department had not obtained agreement from the provinces and other federal departments on this objective. Nor had the Department set out an action plan with activities and milestones to achieve the objective. An action plan could include working with partners to identify areas where the risk of soil erosion is high. Given Environment Canada’s efforts to control soil erosion under the Great Lakes Water Quality Agreement, the two departments would need to establish who would do what, and where.

Information for decision making is not being updated

4.3.17 To manage Canada’s soils and soil problems, governments at all levels need consistent, up-to-date, and accurate soil data and maps. Managers need specific information on the extent and location of soil erosion problems and how they are changing over time.

4.3.18 Systematic soil surveys began in the 1930s, when the federal government organized the national soil survey program with the co-operation of the provinces and universities. Until the mid-1990s, Agriculture and Agri-Food Canada collected information on soil and land resources in a national

Did you know?

- Estimated costs of soil erosion in 1984 to Ontarians downstream of farmland: **\$91 million**
- Percentage increase in conservation tillage in southwestern Ontario since the early 1980s: **43**
- Percentage reduction in federal soil science staff in Ontario, Quebec, and the Atlantic provinces: **88**
percentage reduction of geographic information system staff: **50**
- Number of long-term benchmark sites established in Ontario and Quebec in 1988 to measure soil quality: **7**
number currently active: **1**
- Number of years since some Ontario counties last had a soil survey: **over 40**
- Number of years it would take, at the present rate, to bring soil erosion under control: **90**

database and provided it to all levels of government. Using these data, managers could identify problem areas, link information on soil and land to other data, and assess land status at a regional, national, or international level.

4.3.19 As a result of budget cuts, however, the national soil survey program has almost disappeared. Only small remnants of it in some areas remain.

4.3.20 Cutbacks have also affected other kinds of soil information. In 1988, Agriculture and Agri-Food Canada started a national system for monitoring soil quality. It selected benchmark sites in Ontario and Quebec to observe changes in soil properties over time—a valuable means of tracking changes in agricultural and global ecosystems. Only one site is currently active.

4.3.21 Soil characteristics change over time, and so do the kinds of information collected through soil surveys. Today, little or no new soil data are collected. Nor, except for one local effort, is anyone in Ontario mapping detailed soil information. Over time, the currency, relevance, and reliability of the existing data have eroded. Without up-to-date soil surveys and mapping, it gets harder as time goes by to make informed decisions on land management and to track the progress of efforts to limit soil erosion. Agriculture and Agri-Food Canada is currently exploring options such as remote sensing to try to fill these gaps.

4.3.22 No formal federal–provincial co-ordination. In 1995, the Canada–Ontario agreement on soil databases ended. Until then, a federal–provincial committee of soil survey experts had co-ordinated the work on soil data. Discussions are still under way toward new agreements.

The Department is not ready to take its planned next steps

4.3.23 Agriculture and Agri-Food Canada has planned its next steps to reduce the risk of soil erosion. It will set goals for the proportion of farmland at tolerable risk of erosion; and it will target its efforts at areas that are particularly prone to erosion or that carry an unsustainable level of risk.

4.3.24 In our opinion, however, the Department is not ready to take those steps. Given the loss of scientific expertise and up-to-date soil information, it may set goals and targets that are not realistic. And without good data, the federal government will be unable to determine whether it is actually reducing soil erosion, and unable to estimate the economic impacts accurately. Overall, we are concerned that Agriculture and Agri-Food Canada is ill-equipped to provide information and advice on soil and water quality.

4.3.25 To speed up its progress in controlling soil erosion, the government may have to try additional approaches such as economic instruments and programs aimed at high-risk areas (see case study, Controlling erosion in the Bay of Quinte watershed). There may also be practical lessons in the successes of the Agriculture and Agri-Food Canada Prairie Farm Rehabilitation Administration; its long-term objectives are to support Western rural growth and ensure that land and water resources are used in

ways that can be sustained. A similar approach, delivered with the provinces, could support effective soil erosion programs. An essential part of any new program will be careful monitoring of the results.

Controlling erosion in the Bay of Quinte watershed

Agricultural runoff, sediment, sewage treatment plants, industrial discharges, urban runoff, sewer overflows, illegal sewer connections, shoreline development: all have contributed to water quality problems in the Bay of Quinte. In 1985, the International Joint Commission designated the Bay as one of 43 areas of concern where beneficial uses of the water were impaired. The watershed is on the northeast shore of Lake Ontario and covers roughly 17,500 km².

From 1991 to 1999, the Bay of Quinte received approximately \$1.9 million from the Great Lakes 2000 Cleanup Fund to pay for projects such as construction of manure storage facilities, improvements to household septic systems, purchase of conservation tillage equipment, and fences to control livestock access to streams. These projects were predicted to reduce the phosphorus input to the Bay by 16,500 kilograms, exceeding the target set for the area of concern.

One valuable innovation proposed for the Bay of Quinte was a trading scheme for phosphorus discharges. The costs of reducing phosphorus discharges into the Bay varied with the source. Using alternative farming practices to limit soil erosion may be one of the cheapest ways to reduce the total amount of phosphorus going into surface waters—compared with changing sewage treatment, for example. The proposal was that sewage treatment plants would pay farmers to reduce the phosphorus running off their land rather than making more costly modifications to their plants, thereby reducing the total cost for all users. (This approach would not deal with other water quality problems associated with sewage treatment.)

Although the scheme was considered feasible and would have cut costs overall, it was not adopted at the Bay of Quinte. A similar proposal was used successfully, however, in the South Nation watershed in eastern Ontario.

Conclusion

4.3.26 More than 40 percent of Ontario's cropland is at risk of eroding at an unsustainable rate. Federal and provincial efforts over the past decades have led to an only modest reduction in soil erosion.

4.3.27 Agriculture and Agri-Food Canada has identified overall objectives for reducing soil erosion but has no action plan detailing how it expects to achieve them. A good action plan would set a schedule for progress and specify who would be accountable for what results.

4.3.28 Baseline soil information is essential to good land management decisions, but the present data are becoming more outdated and less useful as time passes. The federal and provincial governments have no formal mechanism for co-ordinating data management.

Our audit objectives and main findings

Holding the federal government to account

① Has the government fulfilled its commitments?	Commitments	Results
	Agriculture and Agri-Food Canada has committed to sustaining the resource base for agriculture.	Soil erosion problems are improving, but progress has been very slow.

Assessing the government's performance

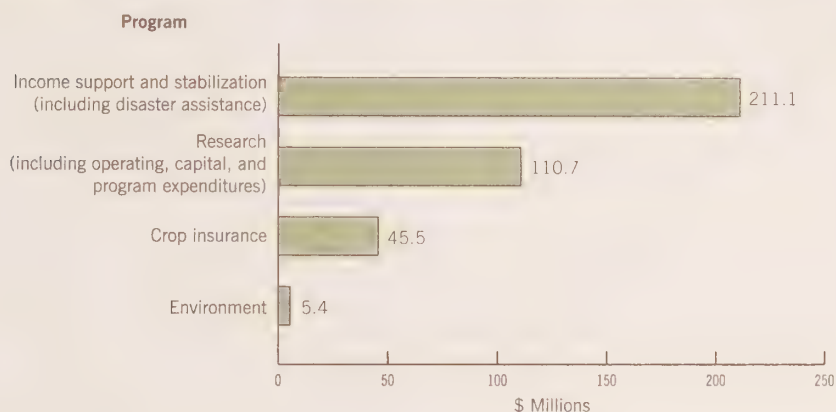
② Has the government applied good management practices?	Strengths	Weaknesses
	<p>The government has identified indicators and objectives.</p> <p>Conservation measures have reduced soil erosion somewhat.</p>	<p>The government has not translated its objectives into priorities or an action plan.</p> <p>It has not defined expected results of current activities.</p>
③ Has the government established good governance structures?	The government has documented issues well in special reports.	<p>The government has not clearly defined accountability for results among departments and partners.</p> <p>It has not maintained soil databases.</p>

4.4 Environmental Impacts of Agricultural Policies and Programs

The issue

4.4.1 Agriculture and Agri-Food Canada spends far more money on agricultural programs in the basin such as crop insurance and disaster assistance than it spends directly to reduce the impacts of agriculture on the environment (Exhibit 4.6). Income support and other programs may be unintentionally encouraging farmers to take actions that harm the environment, countering the gains made by environmental programs. The federal government has recognized that its large subsidies to farmers have potential impacts on the environment.

Exhibit 4.6 Agriculture and Agri-Food Canada program expenditures in the basin (1998–99)



Source: Agriculture and Agri-Food Canada

4.4.2 In some other countries, agricultural subsidies have led to soil degradation, misuse of water resources, and loss of wildlife habitat. A 1995 analysis of U.S. subsidies compared the current support programs with several alternatives. The study concluded that current subsidies were increasing soil erosion, increasing nitrogen and phosphorus pollution, raising pesticide costs, increasing greenhouse gas emissions, and increasing farmers' costs. In Portugal, support for grain production encouraged its expansion into marginal lands, increasing erosion and triggering serious soil losses. Mexico, Japan, and Iceland have seen similar problems. In New Zealand, subsidizing fertilizer use led to increased water pollution.

The federal role

4.4.3 In 1996, the federal government made a commitment to Parliament to have departments assess the environmental impacts of their existing taxes, grants, and subsidies and report the results in their sustainable development strategies (Exhibit 4.7). Cabinet has directed all major departments to also evaluate new policies and programs for their potential effects on the environment.

Exhibit 4.7 Commitment to assess the environmental impacts of policies and programs

Type of assessment	Nature of commitment	Timing	Reporting
Review existing taxes, grants, and subsidies.	Government's response to the report of the Standing Committee on Environment and Sustainable Development.	Commitment made in 1996, significant progress to be made by 1997.	To be reported annually to Parliament and in sustainable development strategies. Progress on tax measures to be included in the budget.
Do environmental assessment of proposed policies, programs, and plans.	Cabinet directives in 1990 and 1999.	To be done at the earliest appropriate stage, prior to approval.	To be included in memoranda to Cabinet.
Do environmental assessment of income support programs.	Requirements under the <i>Farm Income Protection Act</i> .	Programs to be assessed within two years of a federal–provincial agreement and every five years after that.	No specific reporting requirement, but agreements specify how assessments will be done.
Ensure environmental sustainability of agricultural research.	Policy commitment.	Environmental impacts of research projects to be identified prior to approval.	No specific reporting requirement.

4.4.4 Agriculture and Agri-Food Canada has additional obligations. The *Farm Income Protection Act* requires it to carry out environmental assessments of its income support programs for farmers, which include the most costly programs in the basin. And its Research Branch is supposed to evaluate the potential impacts on the environment—both positive and negative—of research it proposes to do.

Our audit questions

4.4.5 Are Agriculture and Agri-Food Canada's programs and policies at cross-purposes with its environmental goals? How well does the Department assess the possible environmental impacts of its programs and policies?

The story

Potential environmental impacts of subsidies

4.4.6 Agricultural subsidies have dropped substantially in the last several years, mostly in response to trade concerns. Still, the Organisation for Economic Co-operation and Development (OECD) estimates that Canada's subsidies to farmers account for 18 percent of their income, and averaged \$5.6 billion per year from 1998 to 2000. Canada's subsidies are significantly lower than some other OECD countries pay.

4.4.7 Federal and provincial governments now direct most of their financial support for farmers not at specific crops but at the farmer's net income. Such programs are intended to avoid distorting trade and production decisions. The support also provides no direct incentive to grow one type of crop over another—so it would not promote the growing of crops that have severe environmental impacts. There may be indirect effects, however. For example, by reducing the risk of financial losses, income support programs encouraged Ontario farmers to keep their fields in corn. This increased the risk of groundwater contamination by nitrogen. A study of Ontario farm support policies found that income stabilization encourages more intensive production, the growing of crops on marginal land, and increased use of pesticides, fuel, and fertilizer.

Existing taxes, grants, and subsidies not assessed adequately

4.4.8 After a 1994 review of how Canada's economic policies could incorporate environmental concerns, the Standing Committee on Environment and Sustainable Development recommended that all departments do a comprehensive study of their tax measures, grants, and subsidies to determine whether they were environmentally sustainable. The government agreed to assess its existing taxes, grants, and subsidies.

4.4.9 Agriculture and Agri-Food Canada has reported only one environmental assessment that met this commitment—an assessment of crop insurance, required by the *Farm Income Protection Act*. But assessments required by the Act do not meet all the requirements of the study the Standing Committee recommended. For example, they do not include the implications for federal environmental priorities or the potential social effects of programs, such as their impact on rural communities.

4.4.10 In its latest sustainable development strategy, the Department has committed to reviewing its existing and new policies, programs, and initiatives by 31 March 2004 to see if they are sustainable. It has not said how it plans to meet this commitment, nor has it reported the progress it has made so far. In the six years since the Committee recommended this kind of study, the Department has not evaluated some major grant and subsidy programs that could be having significant effects on the environment. Without having done the assessments, it cannot identify whether corrective action is needed.

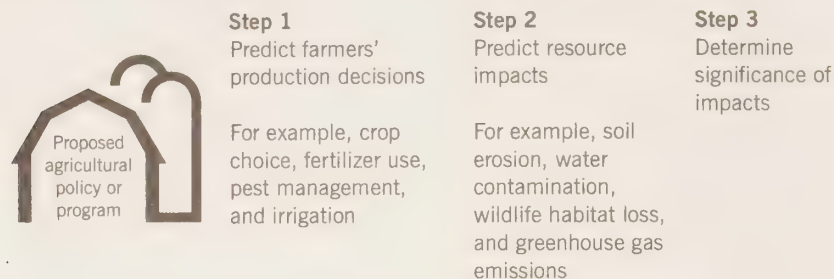
4.4.11 Nor has the Department reported any work to assess the environmental impact of tax measures affecting farmers, such as the GST exemption for fertilizers and pesticides.

Some gaps in assessing new policies and programs

4.4.12 In 1990, Cabinet directed federal departments to assess the environmental impacts of their new policy and program initiatives. Environmental assessments are done to ensure that before deciding to proceed with a policy, plan, or program, decision makers consider the potential environmental effects of the options available. The assessment is to include the environmental effects fully, and they are to be considered at the

earliest appropriate stage, on a par with economic and social considerations (see Exhibit 4.8 for one approach).

Exhibit 4.8 Environmental assessment of an agricultural policy or program



Source: Agriculture and Agri-Food Canada

4.4.13 Agriculture and Agri-Food Canada has not set up a formal process to ensure that it makes decisions properly and documents them. Rather, its current process is ad hoc and incomplete. In its latest sustainable development strategy, the Department acknowledges the need for an improved process.

4.4.14 In 1999, the Cabinet directive was updated. Departmental managers have not yet received training or new guidance on how to apply the updated directive.

4.4.15 Relative lack of detail. In the Department's environmental assessments we reviewed, we were struck by the lack of detail in the analysis of potential environmental effects. The information provided to ministers lacked detail in turn.

4.4.16 Assessing sectoral export goals. Agriculture and Agri-Food Canada has assessed at least one broad policy initiative. It attempted to predict the environmental consequences of the agriculture sector's goals for increased exports. The Department concluded that this policy objective could lead to substantial impacts on the environment (see case study, Environmental assessment of the national export target). In our view, this assessment could be a starting point for evaluating other programs and policies.

Assessment gaps under the *Farm Income Protection Act*

4.4.17 The *Farm Income Protection Act* provides farmers with income security through national programs such as crop insurance and the Net Income Stabilization Account; the Act also provides for support programs that are specific to the provinces. These programs help farmers stay in business during difficult periods. All programs under the Act are guided by principles of social, economic, and environmental sustainability.

4.4.18 Gaps in compliance. The Act requires federal–provincial agreements on farm income support to provide for periodic environmental assessments. Several major programs are excluded from the requirement, but in at least

two cases an assessment that was required was not done. One is the Net Income Stabilization Account, which spends more than \$200 million each year across Canada; an assessment required in 1998 was not completed. Without timely assessments, the Department is not in a position to learn how to reduce the environmental effects of its programs or to inform its provincial partners of the possible impacts. We also found that the Department did not ensure that federal-provincial agreements included all of the provisions stipulated by the Act, such as the requirement for guidance on the assessment.

4.4.19 Lack of verification. Given that the assessments under the Act are done well after a program starts—in some cases, after it has run for several years—we would expect the Department to report the program's observed effects on the environment. In the case of crop insurance, the Department has not verified whether predicted impacts have actually occurred. In our view, this is a significant gap because ministers are not able to judge how reliable predictions have been.

4.4.20 Assessing crop insurance. Crop insurance is one of the most important programs under the *Farm Income Protection Act*, so we took a closer look at the environmental assessments of that program. The 1998 assessment used computer models to predict possible soil erosion, soil salinity, water quality, and wildlife habitat—with and without crop insurance.

Environmental assessment of the national export target

This case illustrates how the Department's goals of economic growth and environmental protection can come into conflict.

The Canadian Agri-food Marketing Council is an advisory body to the Minister of Agriculture and Agri-Food and the Minister for International Trade. In 1998, the Council set new targets for 2005. It wanted to increase Canada's share of the world's agriculture and agri-food exports to 4 percent, of which 60 percent would be processed goods. Agriculture and Agri-Food Canada has adopted this national goal and is supporting the industry's efforts.

The Department studied the export target's implications for the performance of the agriculture sector, employment, resource use, trade, the environment, and policy. It identified several environmental risks, including the following:

- More intensive land use, including the use of more fertilizer, pesticides, and irrigation, with implications for air pollution, water quality, and greenhouse gas emissions.
- Increased use of marginal lands, which are susceptible to degradation. This could result in the conversion of land that provides wildlife habitat, such as wetlands.
- Increased livestock production, which could lead to odours, more contamination of groundwater, and increased tension between farmers and other rural residents. Significant expansion of livestock production may conflict with new greenhouse gas emission targets in the recent Kyoto Accord.

The Department explicitly recognized that pursuing the export target could shift the relative weights of competing public policy objectives and priorities. Information like this is essential to making sound choices.

4.4.21 Based on the assessment, the Department concluded that, overall, crop insurance did not appear to have any significant environmental implications. There may be local or regional impacts—for example, the assessment suggested that Ontario would see a five percent increase in soil erosion.

Environmental consequences of research not adequately assessed

4.4.22 Research is a key federal activity. Agriculture and Agri-Food Canada's Research Branch influences the long-term sustainability of agriculture in the basin by shaping future management practices and tools for producers. The Branch is committed to developing and promoting practices that are environmentally sound.

4.4.23 The Branch does some research aimed at increasing crop and animal production—for example, by developing new crop varieties or extending the range of current varieties. Applying the results of such research could have negative effects on the environment—if, for example, the new crops exposed more soil to water erosion. Researchers are supposed to describe the potential environmental and social impacts of their research and to do a cost-benefit analysis. We reviewed 20 recent proposals from research centres in the basin and found little evidence that they had assessed the environmental impacts appropriately.

4.4.24 Evaluating research centres. Some centres do research on resource conservation, research that is supposed to be integrated with the crop, animal, and food research of other centres. We expected that the Department would consider environmental objectives in evaluating the performance of its research centres.

4.4.25 We found, instead, that evaluations focus on the economic benefits of the research and on whether a centre is meeting the industry's needs. For example, the success of research on crop and animal production at the Dairy and Swine Research and Development Centre in Lennoxville, Quebec was measured only in terms of economic benefits.

4.4.26 Review committees that evaluate research centres include representatives of government, academe, and industry. But they do not include stakeholders with a direct interest in reducing the environmental impacts of agriculture—municipalities, for example, or fishers.

4.4.27 Evaluating research areas. The Research Branch has also evaluated its research on wheat, forage, potatoes, and swine. These evaluations calculate the direct economic impacts of the research on the agriculture sector but do not include the environmental costs or benefits.

4.4.28 Faced with potentially conflicting goals, Agriculture and Agri-Food Canada needs to carefully and explicitly consider the implications of its policies and programs for the environment. The Department has not met some requirements in its legislation and policies to do this.

Did you know?

- Amount spent in 1998–99 by Agriculture and Agri-Food Canada in Ontario and Quebec on income support and stabilization programs: **\$211 million**
amount spent on environmental programs: **\$5.4 million**
- Year that the federal government committed to a study on the environmental effects of its tax measures, grants, and subsidies: **1996**
year that Agriculture and Agri-Food Canada says it will complete the next part of its study: **2004**
- Amount spent on programs under the *Farm Income Protection Act* that do not require an environmental assessment: **over \$500 million**
- Possible percentage increase in soil erosion in Ontario due to crop insurance: **5**

Conclusion

4.4.29 Agriculture and Agri-Food Canada has made limited progress in the study of its existing tax measures, grants, and subsidies, but it has not completed the study. Nor has it reported on the status of this work.

4.4.30 The Department made early progress in applying the Cabinet directive on environmental assessments of policies and programs, but it has no systematic, formal process to conduct them. As a result, the Minister cannot be assured that the Department is complying with the Cabinet directive.

4.4.31 There are gaps in the Department's compliance with the *Farm Income Protection Act's* requirements for environmental assessments. The Department has concluded that current income support programs are not likely to encourage farming practices that damage the environment. Some programs, however, could have local or regional impacts—for example, crop insurance could be increasing the risk of soil erosion in parts of Ontario. The Department does not attempt to monitor the actual impacts of its policies on the environment to determine whether its predictions have been accurate.

4.4.32 The information used to select individual research projects does not have enough details on their potential environmental effects. Evaluations of some of the Department's broad research areas applicable in the basin did not take account of the possible environmental effects. Evaluations of the research centres focus on the economic impacts of research and whether the needs of the agriculture industry have been met.



Our audit objectives and main findings

Holding the federal government to account

1 Has the government fulfilled its commitments?	Commitments	Results
	Review existing taxes, grants, and subsidies.	Agriculture and Agri-Food Canada has not completed the review. It has not reported results of the review to Parliament.
	Do environmental assessment of proposed policies, programs, and plans.	It has completed some assessments but they lack details.
	Do environmental assessment of income support programs.	It has not fulfilled some legislated requirements for assessments.
	Ensure environmental sustainability of agricultural research.	Its research proposals lack adequate information about environmental impacts.

Our audit objectives and main findings

Assessing the government's performance

 Has the government applied good management practices?	Strengths	Weaknesses
	Agriculture and Agri-Food Canada has completed some integrated environmental-economic assessments.	Agriculture and Agri-Food Canada has no formal process for tracking decisions on environmental assessments of policies and programs. Its information on the environmental impacts of research is inadequate.
 Has the government established good governance structures?	Agriculture and Agri-Food Canada has made available to the public some environmental assessments completed under the <i>Farm Income Protection Act</i> .	Agriculture and Agri-Food Canada has not reported the status of its study of taxes, grants and subsidies. It has not reported on its application of the Cabinet directive.

4.5 Working Toward Environmentally Sustainable Agriculture

The issue 4.5.1 Farming practices in the Great Lakes and St. Lawrence River basin are having effects on the environment that cannot be sustained. While some impacts such as soil erosion are improving slowly, others such as water contamination and loss of wildlife habitat are getting worse (Exhibit 4.9).

4.5.2 The effects of agriculture will likely worsen as farmers step up production to respond to the rising demands of export food markets. Low food prices and international subsidies are squeezing profits and limiting what farmers can do on their own to remedy these effects. And federal programs and funding have shrunk.

The federal role 4.5.3 The federal government has a role to play by providing national leadership, promoting and supporting good farming practices, and doing research. It also monitors the state of the ecosystem, tracks the impacts of agriculture, and reports to Parliament.

Our audit questions 4.5.4 Has the federal government established an effective plan to manage the range of sustainable agriculture issues in the basin? Has it defined who is accountable for what?

Exhibit 4.9 Trends in some key environmental impacts

Environmental impact	Measurement	Time period	Improving
Pesticide use in Ontario	Tonnes of active ingredient	1983–1998	2.7% reduction per year
Pesticide use in Quebec	Tonnes of active ingredient	1992–1997	1% reduction per year
Soil erosion in Ontario	Percentage of cropland at unsustainable risk of soil erosion	1981–1996	0.5% reduction per year
Greenhouse gas emissions	Tonnes of carbon dioxide equivalent	1990–1996	Roughly constant
Nitrogen contamination of water	Percentage of farmland with increased nitrogen content of water	1981 and 1996	71% of farmland has a higher nitrogen content
Wildlife habitat loss on agricultural land	Percentage of habitat types with decreased habitat area	1981 and 1996	75% of habitat types have less area

Getting worse

The story **Management challenges for the federal government**

4.5.5 Need for an integrated view. To manage the environmental effects of agriculture successfully, many farmers need to improve their practices. They need to know how each of their practices interrelates with the others and with the ecosystem.

4.5.6 Individual problems cannot be managed in isolation from the others. Draining water from farmland may improve crop yields, but it may contaminate downstream rivers and lakes with phosphorus, nitrogen, and pesticides. Using less insecticide may benefit birds, but it may lead to greater damage by insects. Manure is a source of greenhouse gases, yet it also provides crop nutrients. Strips of vegetation along streams to stop erosion may also provide good wildlife habitat. Working manure into the soil may conflict with best practices for preventing soil erosion. Farmers may need to meet conditions such as the rigorous use of pesticides to be eligible for crop insurance, yet this counters federal and provincial efforts to reduce pesticide use. In short, farmers need clear and consistent government messages.

4.5.7 To support farmers properly, the federal government needs an integrated approach to managing for sustainable agriculture. This requires that it do the following:

- define its objectives clearly;
- select appropriate tools to achieve its objectives;
- use its resources where they stand to do the most good;
- co-ordinate the use of selected tools;
- measure and report progress; and
- define clearly who will do what.

Objectives defined clearly but crucial gaps remain

4.5.8 In its latest sustainable development strategy, Agriculture and Agri-Food Canada defines sustainable agriculture in very broad terms:

Sustainable agriculture protects the natural resource base, prevents the degradation of soil, water, and air quality, and conserves biodiversity; contributes to the economic and social well-being of all Canadians; ensures a safe and high-quality supply of agricultural products; and safeguards the livelihood and well-being of agricultural and agri-food workers and their families.

4.5.9 While this definition incorporates the three dimensions of sustainable development (environmental, economic, and social), to be a useful guide for action it needs to be translated into specific objectives and targets. These must provide a clear path forward to resolve potentially conflicting direction. For example, safeguarding the livelihood of agricultural and agri-food workers may mean stepping up production, which could conflict with preventing water pollution.

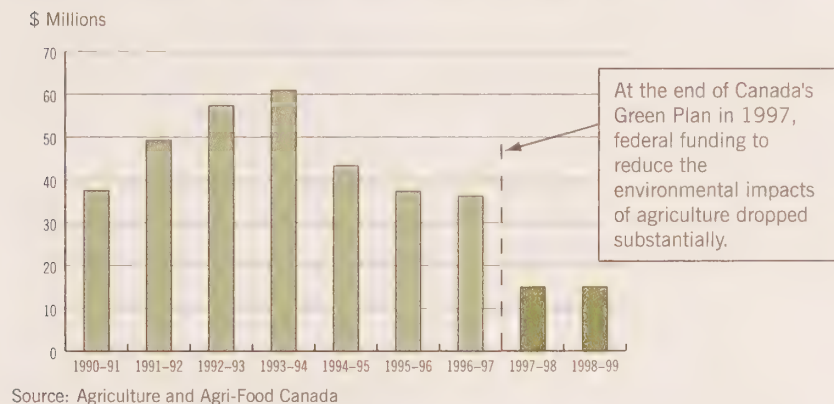
4.5.10 Agriculture and Agri-Food Canada has set some objectives for the Department and has identified others for the agriculture sector. Most of the

Department's objectives say what it will produce (research projects, policy analyses) but not how those products will contribute to the broader objectives for the agriculture sector. To achieve the sector objectives, which are measurable and have clear deadlines, the Department has not said what it will do and what it expects others to do. In our view, this is a crucial gap in the management of environmental issues in the basin.

Selecting the right tools

4.5.11 A basic shift in program delivery. The funding levels and the nature of federal initiatives for sustainable agriculture have seen major changes in the last five years. At the end of Canada's Green Plan in 1997, federal funding to reduce the environmental impacts of agriculture dropped substantially (Exhibit 4.10). At about the same time, Agriculture and Agri-Food Canada turned to other ways of delivering programs to meet its objectives. These include economic instruments (using market forces to achieve policy goals), stewardship, environmental management systems, and educational programs.

Exhibit 4.10 Agriculture and Agri-Food Canada spending on environmental programs



4.5.12 Today, the government gives much of its support in the form of grants to farm organizations and other agencies that select and fund projects—mainly through the Canadian Adaptation and Rural Development Fund. Industry-led agricultural adaptation councils oversee programs in both Ontario and Quebec, giving producer groups more opportunity to influence priorities and results. Environmental sustainability is one of their priorities.

4.5.13 Through the adaptation councils, the federal government has supported two different approaches in Ontario and Quebec to meet environmental objectives. Both approaches rely on voluntary participation and education.

4.5.14 Quebec agri-environmental clubs. The federal and provincial governments, in partnership with agricultural organizations, have promoted clubs for farmers to share information and co-operate in conservation measures, with technical experts for each club to provide advice. Today, the province has about 75 farm conservation clubs, representing roughly



Members of an agri-environmental club in Quebec learn about the environmental impacts of farming practices.

Source: Bruno Gosselin, Quebec Ministry of Agriculture, Fisheries and Food

4,000 farms. The Quebec adaptation council, the provincial government, and producer organizations had a target of 4,000 farms participating in conservation clubs by 2001.

4.5.15 Ontario environmental farm plans. In Ontario, the environmental farm plans have a higher profile than any other agri-environmental program in the province. Using workshops and workbooks, the program helps participating farmers identify their own environmental problems and develop plans to remedy them. When peer review committees accept the plans, the farmers are eligible for grants to help tackle their priority problems. The federal government has given more than \$21 million to the program since 1992.

4.5.16 The program is also seen as a way to reduce the amount of phosphorus and other pollutants in runoff from farms and thereby help meet obligations under the Great Lakes Water Quality Agreement. Support for this program was a target of the 1994 Canada–Ontario Agreement.

4.5.17 Common features. The main advantages of these two voluntary programs are their flexibility and the strong commitment of their participants. Common drawbacks include diffuse accountability and incomplete measurement of results. For example, no link has been made between the environmental farm plans and observable benefits to the environment, such as better water quality. The programs give farmers little specific incentive to minimize their impacts on the environment beyond the farm gate.

4.5.18 How effective a voluntary approach can be depends on how many farmers are willing to participate. By 2000, the environmental farm plan workshops had drawn 18,614 participants from over 35 percent of Ontario farms. Of these, 7,976 had taken advantage of the financial incentives to make improvements. The agri-environmental clubs in Quebec involve a smaller proportion of Quebec's farmers (12 percent). But they encourage continuous participation, unlike the one-time preparation of an environmental farm plan.

4.5.19 In our opinion, given the increasing impacts of agriculture on some parts of the basin ecosystem, relying on these and similar approaches to influence farmers will not be enough for the government to achieve its environmental objectives.

4.5.20 An old tool needs clearer priorities. One way Agriculture and Agri-Food Canada can achieve its environmental goals is to give farmers information about new and better practices. This makes research an essential part of the management framework.

4.5.21 Since 1995, Agriculture and Agri-Food Canada has delegated a separate mandate to each of its 19 research centres across the country. This has given research centres the flexibility to adapt to local needs and circumstances, but it also raises the challenge of ensuring that national priorities are targeted. The Department has not set priorities that each research centre is to meet for the environmental issues in its mandate.

4.5.22 With the long lead times in research, the mix of research projects normally changes quite slowly. At the same time, however, the timing, scope, and relevance of current research projects are not co-ordinated well enough to meet the needs of agriculture policy development. With a few exceptions, there is a gap between those who do research and those who develop and enact policies.

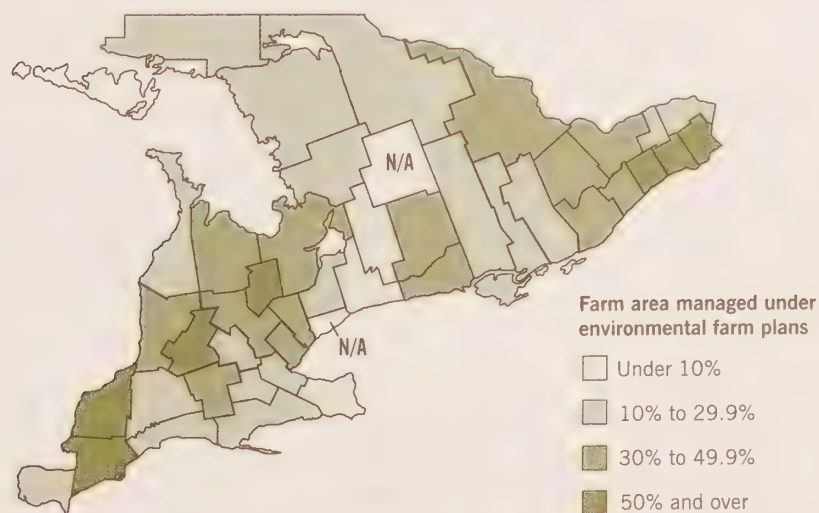
Using resources where they can do the most good

4.5.23 Programs need to be targeted better. In 1993, Agriculture and Agri-Food Canada recognized that program design and allocation of resources should be based on quantitative measures and indicators. In its latest sustainable development strategy, it reiterates the need to target geographic areas for environmental improvement. It is not doing this yet.

4.5.24 While the Department has some information about where the biggest threats to the environment are located, we found no evidence that it has spent the most money in those areas. The risks to the environment from agriculture are much greater in Ontario than in Quebec. Yet the National Soil and Water Conservation Program (1997 to 2000) gave each the same amount, \$2.5 million; and the Agricultural Environmental Stewardship Initiative (2000 to 2003) gave them each \$2.475 million.

4.5.25 Nor is the Department directing its initiatives in Ontario to where they can do the most good. We found that rates of participation in the environmental farm plan program were unrelated to the risks of soil erosion, for example. Southwestern Ontario has a higher risk of soil erosion than eastern Ontario, but a smaller proportion of farmers who participated in the program (Exhibit 4.11). The nine counties with the worst soil erosion have some of the lowest rates of participation.

Exhibit 4.11 Participation in Ontario environmental farm plans



Source: Ontario Soil & Crop Improvement Association, April 1999; 1997 Ontario farm registration database; 1996 Census of Agriculture.

4.5.26 Targeted incentives may be an effective complement to generally available programs. One Ontario example is the Rural Water Quality Program, delivered by the Grand River Conservation Authority and funded by the Region of Waterloo, County of Wellington, and City of Guelph. It requires an environmental farm plan as a prerequisite for participation in the incentive program. The Rural Water Quality Program is providing roughly three million dollars to farmers in the region to assist them in adopting practices that improve and protect water quality. These incentives have dramatically increased participation in the environmental farm plan program. In our view, the size of the effort to improve environmental quality should not reflect local organizational abilities and financial resources alone. We believe the federal government needs to provide a broader strategic perspective that also reflects the severity of the problem.

Co-ordinating the use of tools

4.5.27 Linking different agricultural programs. Separate federal efforts to change farmers' practices need to send consistent signals. Under the *Farm Income Protection Act*, Parliament specified that crop insurance could be withheld, restricted, or enhanced as needed to protect the environment and encourage sound management practices, in order to ensure sustainability.

4.5.28 In Quebec, Agriculture and Agri-Food Canada does not require that farmers belong to agri-environmental clubs to be eligible for crop insurance. Environment Canada does not require that farmers have an environmental farm plan or equivalent demonstration of environmental performance to receive grants from the Great Lakes 2000 Cleanup Fund in Ontario, or the Community Interaction program in Quebec.

4.5.29 A report prepared for Agriculture and Agri-Food Canada concluded that cross-compliance with program requirements is feasible in Canada and noted that an Ontario farm association was advocating it. Cross-compliance is a potentially effective instrument if properly designed, applied, and monitored. The Auditor General of Quebec recommended in 1995–96 that the Quebec Ministry of Agriculture, Fisheries and Food ensure that its financial aid programs reflect its environmental concerns.

4.5.30 In 1993, our Office recommended that Agriculture and Agri-Food Canada continue a detailed examination of the feasibility of including cross-compliance measures in federal and provincial agriculture programs. The Department ultimately decided against requiring cross-compliance because it considered that participation in its income support programs was too low to give it the necessary influence over farmers.

4.5.31 In our view, the context for agriculture policy has changed substantially since 1993. The Department now has some overall information on how the new mix of tools is working; it knows how the environmental impacts from agriculture are changing over time. We believe that the Department needs to re-evaluate the mix of policy and program tools, including opportunities to ensure that they work together well.

Measuring and reporting progress

4.5.32 The Research Branch and the Strategic Policy Branch of the Department have been developing agri-environmental indicators since 1993. The results of their work have been published as *The Health of Our Soils*, *The Health of Our Air*, and *The Health of Our Water*, along with a report on agri-environmental indicators issued early in 2000. The indicators estimate the geographic distribution of variables such as soil erosion, wildlife habitat, and water pollution, and the changes in them.

4.5.33 This work is essential to closing two key gaps in the Department's management framework: the need to set targets and the need to measure progress toward them. Without accurate data and knowledge from monitoring, scientists and managers can only speculate about environmental problems, their probable causes, the likely consequences, and the adequacy of current measures to protect and restore environmental quality. At present, for example, the Department is ill equipped to answer some fundamental questions about its environmental programs. Are they funded adequately? Are they funded at levels higher than the anticipated benefits would warrant?

4.5.34 A strength of the Department's current sustainable development strategy is that it links its agri-environmental indicators to the objectives for the agriculture sector. The Department proposes to measure progress using the indicators and to report it in the yearly departmental performance report. Parliament and Canadians can then track its progress toward sustainable agriculture.

4.5.35 We are concerned that the Department is ill equipped to maintain the agri-environmental indicators and keep this valuable source of information current. It took close to seven years to develop this first set of information. The Department has lost and not replaced some of its resident expertise. As a result of departmental restructuring, the documentation and data used in the latest report are now fragmented. Internal responsibility for maintaining them has not been determined. These issues had not been resolved at the end of our audit. If the Department does not resolve them soon, it may lose the important progress it has made.

4.5.36 Some key risks not included. The current set of agri-environmental indicators does not capture all of the main environmental issues in agriculture. For example, it does not include the impacts of pesticide use. Without a good indicator of pesticides, it will be difficult to compare the relative risks associated with the pesticides used on different crops and to target pesticide reduction programs accordingly.

Defining clearly who does what

4.5.37 Federal linkages. We found that federal departments are not working with each other as effectively as they could. There is no document that formally sets out the division of roles and responsibilities for agri-environmental issues between Agriculture and Agri-Food Canada and Environment Canada. They co-operate on some research activities under a memorandum of understanding. But they do not consistently co-ordinate

policy analysis, program design, monitoring, or reporting, even though they both have programs that target the same environmental problems and the same farmers.

4.5.38 The two departments do not always use each other's expertise or build on each other's initiatives. For example, using the Great Lakes 2000 Cleanup Fund, Environment Canada supports the construction of manure holding structures. In contrast, Agriculture and Agri-Food Canada has two programs that explicitly rule out support for these structures. As a result, the departments risk working at cross-purposes or sending mixed messages.

4.5.39 Federal–provincial linkages. We observed that there is no clear, up-to-date mechanism to guide Agriculture and Agri-Food Canada in collaborative efforts with the provinces. In the early 1990s, the Department signed environmental accords with the Ontario and Quebec agriculture ministries. The accords outlined their respective responsibilities and were used to administer a series of major programs. The last of these programs, Canada's Green Plan, expired in 1997. The management committees for the accords have not met in over four years.

4.5.40 While for some functions there are implicit arrangements between the federal and the provincial governments, the role of each is not clearly defined. This can jeopardize the federal government's ability to reach its environmental goals. For example, it has assumed responsibility for basic research and relied on the provinces to transfer the results of the research to farmers, through their agricultural extension services. Recent changes to Ontario's agricultural extension service mean that the federal government must find other ways to tell farmers about the results of its research.

Scaled-back effort to include agriculture in federal ecosystem initiatives

4.5.41 Managing agriculture's effects on the environment calls for an approach that recognizes the links among those effects and the role of agriculture in the ecosystem. Both Agriculture and Agri-Food Canada and Environment Canada support an ecosystem approach to making those links, in part through the regional ecosystem programs.

4.5.42 The federal government did not allocate resources for agriculture issues in phase I of St. Lawrence Vision 2000. In phase II (1993 to 1998), Agriculture and Agri-Food Canada and its Quebec counterpart supported actions such as plans to reduce agricultural pollution in four Quebec watersheds. The Department contributed \$2.1 million. In phase III (1998 to 2003), it scaled back and shifted its participation to \$1 million for research projects over five years, projects that had been under way before phase III started. The remaining federal contribution to agriculture in the third phase is \$3.5 million from Environment Canada, most of which will be used to "top up" provincial programs aimed at reducing pesticide use, increasing the area under integrated pest management, and tracking results. The mid-term review of phase III in July 2000 noted that the program had not met its target for reduced use of pesticides.

4.5.43 Great Lakes 2000 had strong involvement by Agriculture and Agri-Food Canada at first. But with funding cuts in the mid-1990s and the absence of new funding for agricultural programs in the third phase of the program (Great Lakes 2020), the Department's involvement has dropped off significantly.

4.5.44 The federal government could have used these regional ecosystem programs to integrate the management of agriculture and its environmental effects. But it has not done that. Agriculture and Agri-Food Canada has not effectively integrated its policies and programs in the basin with those of its federal and provincial partners. Indeed, most of its efforts toward sustainable agriculture have been outside the umbrella of the flagship programs.

Did you know?

- Number of agri-environmental indicators in the basin that Agriculture and Agri-Food Canada estimates are improving: **7**
number of indicators showing no change: **4**
number of indicators getting worse: **6**
- Percentage decrease in federal program funding to reduce environmental effects of agriculture, 1993–94 to 1997–98: **75**
- Number of agri-environmental farm clubs in Quebec (representing 4,000 farms): **75**
- Federal contribution to the environmental farm plan program in Ontario: **\$21 million**
- Number of farmers attending the program's workshops by May 2001: **about 20,000**
- Environmental benefits from the program: **unknown**
- Number of years it took to develop the first agri-environmental indicators: **7**
- Number of years since the management committees for the federal–provincial environmental accords last met: **4**

More action needed on key issues

4.5.45 Other parts of this Section have discussed what the federal government is doing to manage soil erosion and pollution from manure and fertilizer. Three other major problems it must manage to ensure that agriculture is sustainable are the risks in using pesticides, the loss of biodiversity, and greenhouse gas emissions.

4.5.46 Pesticide risks. Pesticides can be a hazard to human health and the sustainability of the ecosystem. Because 91 percent of pesticides sold in Canada are used in agriculture, attempts to minimize their risks need to tackle agricultural uses.

4.5.47 In 1999, we found that the federal government had not made adequate plans to reduce the risks or use of pesticides. In 1998, the Pest Management Regulatory Agency committed to preparing a risk reduction strategy by 2000. It has also committed to a joint risk reduction strategy with Agriculture and Agri-Food Canada for pest management in agriculture. Some elements of both strategies have been developed, but neither has been finalized.

4.5.48 One way to reduce the risks in using pesticides is integrated pest management—a mix of methods to control pests and reduce their damage. In 1999, we noted that the Agency had not set clear goals for its efforts to promote integrated pest management; this is still the case today.

4.5.49 Loss of biodiversity. Farming practices have contributed to the loss of wetlands and other wildlife habitat. The federal response has been to promote stewardship by landowners, conduct research, and monitor habitat losses. Current agricultural practices have also led to the loss of genetic diversity in crops and livestock, which may make them more vulnerable to pests and pathogens.

4.5.50 Agriculture and Agri-Food Canada has developed its own part of the Canadian Biodiversity Strategy. The latest version, in the Department's sustainable development strategy for 2001–04, has some elements of an action plan, including targets for both the Department and the agriculture sector. For example, the Department has committed to “contributing to biodiversity conservation and enhancement on the land it administers.” But

the strategy lacks other elements, such as the results expected from departmental programs.

4.5.51 Greenhouse gas emissions. With Canada's total emissions of greenhouse gases still growing, the federal government allocated \$4 million in 1999 for research on ways to reduce the net emissions by agriculture. The Department has worked with other stakeholders to identify a variety of reduction measures and policy options, which have been incorporated into the Government of Canada Action Plan 2000 on Climate Change. The action plan lacks targets for reducing emissions by agriculture, in regions of Canada or in Canada as a whole.

Conclusion

4.5.52 The federal government has not said how it will achieve sustainable agriculture in the basin. It has identified some measurable objectives for the sector, with clear deadlines, but has not said how its own activities will contribute to these objectives.

4.5.53 Over the last decade, funding for agricultural environmental programs has dropped and the focus has changed to educating the public and supporting voluntary groups. It is not clear who is accountable for what long-term outcomes.

4.5.54 Agriculture and Agri-Food Canada needs to improve the way it sets priorities in agricultural research, one of its prime tools. It also needs to do a better job of directing program funds to where they will do the most good.

4.5.55 The Department could make its policies and programs more effective by coupling them—for example, linking income support programs to environmental programs.

4.5.56 The agri-environmental indicators are an impressive synthesis of several years' work; they play a key part in managing environmental issues. The Department's ability to sustain this reporting framework is in doubt unless it finds the will, the resources, and the people to collect the information.

Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	Sustain the resource base for agriculture.	Agriculture is currently not environmentally sustainable in the basin.
	Prepare a risk reduction strategy for pesticides.	The government has not prepared this strategy.
	Target program resources using quantitative information.	It has not targeted resources.
	Develop agri-environmental indicators.	It has developed indicators, but not included pesticides.

Our audit objectives and main findings

Assessing the government's performance

② Has the government applied good management practices?	Strengths	Weaknesses
	<p>Agriculture and Agri-Food Canada has set measurable targets for the agriculture sector.</p> <p>It has developed agri-environmental indicators—an important start.</p>	<p>The government has not set departmental targets for environmental impacts.</p> <p>It has not linked priorities to areas where it can do the greatest good.</p> <p>Its major tools are not enough to remedy some impacts.</p> <p>It has not taken the opportunity to link income support and environmental programs.</p>
④ Has the government established good governance structures?	Strengths	Weaknesses
	<p>The government has credible information on overall trends.</p> <p>It has made agriculture a part of major ecosystem initiatives.</p>	<p>The government has poor information on program results.</p> <p>The links among departments are weak.</p> <p>It needs to clarify roles between federal and provincial governments.</p>

SPECIES AND SPACES AT RISK

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SPECIES AND SPACES AT RISK



5.1 Overview and Recommendations

Ecosystems and quality of life suffer

5.1.1 The Great Lakes and St. Lawrence River basin has almost 160 species at risk, according to the Committee on the Status of Endangered Wildlife in Canada (May 2001). This is more than 40 percent of all the species at risk in Canada. The loss of species indicates that the health of ecosystems is deteriorating, and this can degrade our quality of life.

5.1.2 Many species in the basin are at risk because their natural habitat has been lost or degraded. Since the earliest days of settlement, many of the grasslands, forests, and wetlands that once covered this region have been lost and are now heavily fragmented. Southern Ontario and the St. Lawrence Valley have lost more than 70 percent of their wetlands—more than 95 percent, in certain areas.

5.1.3 National wildlife areas and migratory bird sanctuaries are important biological assets in the basin. They provide habitat for a variety of species, including species at risk, and four national wildlife areas are recognized internationally as significant wetlands.

Conservation takes long-term effort

5.1.4 Recovering species and spaces at risk requires long-term, sustained action. Anyone who has tried to maintain an aquarium at home knows the ongoing attention and fine-tuning required to support life. Wetlands are a case in point. Although they can be resilient and respond to change, they can be destroyed overnight—and restoring them is a tricky, expensive, and long-term prospect. The restoration of the Oshawa Second Marsh has spanned more than 25 years and could take as many more to complete.

The federal role and mandate

Protecting and recovering species at risk

5.1.5 The federal government's present mandate for species at risk is based on various pieces of federal legislation, including the *Canada Wildlife Act*, the *Department of the Environment Act*, the *Migratory Birds Convention Act*, the *Department of Fisheries and Oceans Act*, the *Fisheries Act*, and the *National Parks Act*. (The *Oceans Act* also forms part of the federal mandate, but it does not apply to freshwater ecosystems.)

5.1.6 In February 2001, the federal government introduced new legislation to protect wildlife species at risk in Canada. The proposed Act, known as the *Species at Risk Act*, specifies that the federal government would be responsible for the protection and recovery of migratory birds at risk (those that are listed in the *Migratory Birds Convention Act*), aquatic species at risk (species in

fisheries and marine mammals), and species at risk that live on federally owned lands. This accounts for roughly 60 percent of all threatened and endangered species in the basin.

Conserving habitat and wetlands

5.1.7 Conservation measures for habitat, including wetlands, are included in the *Canada Wildlife Act* (establishing national wildlife areas), the *National Parks Act* (establishing national parks), the *Fisheries Act* (protecting fish habitat), the *Canadian Environmental Assessment Act*, and the *Income Tax Act*. Migratory bird sanctuaries are established under the *Migratory Birds Convention Act*. In all migratory bird sanctuaries, the federal government regulates hunting activities. In sanctuaries on federal lands, it manages habitat as well, but not in sanctuaries on private or provincial lands. In a variety of its policies and plans, the federal government has made commitments to protect and restore habitat.

Conserving habitat through stewardship

5.1.8 The federal government, provincial and territorial governments, and interested groups outside government (including Aboriginal communities) have led a range of efforts to encourage stewardship—voluntary actions undertaken to conserve habitat. The federal government's legislative authority is outlined in the *Department of the Environment Act*, the *Canada Wildlife Act*, and the *Department of Natural Resources Act*. The government also uses the *Income Tax Act* to encourage voluntary land donations and conservation easements for ecologically sensitive lands, in return for income tax benefits and incentives. The Habitat Stewardship Program for Species at Risk and the Ecological Gifts Program are two examples of federal programs aimed at encouraging stewardship.

What we audited

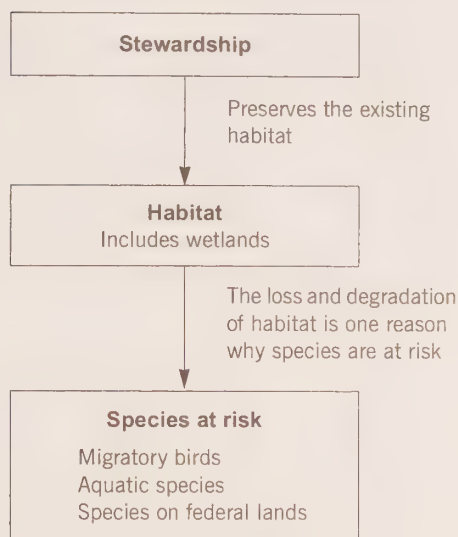
5.1.9 We examined three aspects of the federal government's efforts to conserve species and spaces at risk: to protect and recover species at risk (Subsection 5.2); to conserve wetlands habitat, including the management of national wildlife areas and migratory bird sanctuaries (Subsection 5.3); and to promote stewardship (Subsection 5.4).

5.1.10 One theme these aspects have in common is the importance of habitat. The loss and degradation of habitat, including wetlands, is one of the main reasons why species are at risk—without habitat, they cannot survive. Stewardship means preserving the habitat we still have (see Exhibit 5.1).

What we found

5.1.11 Species at risk. In theory, once a scientific determination is made that a species is at risk, the recovery process is straightforward. A lead agency is identified, a recovery plan developed, the plan's actions carried out by various stakeholders, the results tracked, and the plan adjusted. In practice, the scientific process is overburdened. In some cases, there is a need to clarify who leads what; the lead party cannot force unwilling partners to act; and, until recently, recovery efforts have been underresourced and results not measured and reported adequately.

Exhibit 5.1 Without habitat there is no wildlife



5.1.12 There are 50 species in the basin under federal jurisdiction that are threatened or endangered. These are rough estimates; there is no comprehensive inventory of all species on federal lands. Almost half of these species do not have recovery plans, despite federal commitments to prepare them. Historically, Fisheries and Oceans has not managed freshwater species at risk in the basin. However, as it gets more involved in recovery efforts, it will need to clarify its role in relation to provincial roles, especially where a province has already been active in recovering or protecting a freshwater fish.

5.1.13 Only 10 percent of the species under the federal government's jurisdiction in the basin have stable or improving populations; trends for the remaining 90 percent are either declining or not reported. Recovery plans and actions do not guarantee the recovery of a species. Recovery plans are not binding; recovery teams have no authority to ensure that they are carried out.

5.1.14 The federal government recognizes the need for federal species-at-risk legislation. However, meeting its commitments to pass such legislation continues to be a challenge. In 1997, its proposed *Canadian Endangered Species Protection Act* died on the order paper when a federal election was announced, as did Bill C-33 (the proposed *Species at Risk Act*) when the fall 2000 election was called. In February 2001, Bill C-5 (a revised version of the proposed Act) was introduced in the House of Commons.

5.1.15 In its February 2000 Budget, the federal government announced \$180 million in national funding over five years for a new species-at-risk program, including stewardship initiatives. Despite this major increase in funding, the federal departments and agency involved in the program are concerned that there will be serious gaps.

5.1.16 Reporting of recovery actions has been incomplete and inconsistent. However, the federal government has developed comprehensive performance indicators for its new species-at-risk program. If progress measured by the indicators is reported consistently, it will be a significant improvement over current reporting.

5.1.17 Wetlands. The federal government has participated in restoring and protecting wetlands. While these activities are encouraging, there is not enough information on the current status of wetlands to say whether it is improving or getting worse. Environment Canada and Fisheries and Oceans are involved in efforts to improve the information on wetlands in both the Great Lakes and the St. Lawrence River.

5.1.18 National wildlife areas and migratory bird sanctuaries are important biological assets that are the responsibility of Environment Canada. Many of the national wildlife areas and migratory bird sanctuaries in the basin contain wetlands, some of international significance. However, Environment Canada lacks the personnel and financial resources to manage them effectively. Most management plans for national wildlife areas have not been updated since the early to mid-1980s. There is limited monitoring of public access to and use of national wildlife areas, and the federal government undertakes limited scientific research in them. Moreover, Environment Canada does not sufficiently enforce its regulations under the *Canada Wildlife Act* and the *Migratory Birds Convention Act* as they pertain to national wildlife areas and migratory bird sanctuaries.

5.1.19 There is no single federal department or agency formally responsible for wetlands. Designating a lead department or agency would strengthen accountability for monitoring, evaluating, and reporting federal action on wetlands.

5.1.20 Stewardship. Given the little amount of land it owns in the basin, the federal government needs to influence what happens on the land it does not own. To do this, it has made stewardship one of the three priorities of its national strategy to protect species at risk.

5.1.21 To that end, it is involved in 15 programs and initiatives that support stewardship in the basin; they offer financial support and incentives, rewards and recognition, and education and outreach services. However, it delivers these programs without a cohesive stewardship strategy. A strategy would ensure that the individual programs were focussed on complementary goals and their results could be reported consistently.

5.1.22 The performance of federally funded stewardship projects is measured and reported, but there is limited reporting of their longer-term outcomes. Nor does the federal government produce summary reports of its efforts, their costs, and the results they achieve. There is also limited reporting of habitat losses and the extent to which they offset the gains made by stewardship projects. This makes it difficult to determine the net benefits of stewardship projects and to know whether the state of habitat in the basin is getting better or worse.

What we recommend

5.1.23 Our findings show the need for better baseline information; clearer roles, commitments, and strategies; and better reporting on trends and results.

5.1.24 The federal government should develop better baseline information on species and spaces at risk, in the following ways:

- Environment Canada, Fisheries and Oceans, and Parks Canada Agency, with input from other federal landholding departments and agencies, should develop a comprehensive inventory of all species at risk under their jurisdiction, including those on federal lands in the basin. Where this information will not pose a threat to the protection of the species, they should make it publicly available.
- Environment Canada should comprehensively assess the environmental state and management of national wildlife areas and migratory bird sanctuaries in the basin.

5.1.25 The federal government should outline responsibilities and commitments and establish strategies for species and spaces, in the following ways:

- Environment Canada, Fisheries and Oceans, and Parks Canada Agency should ensure that recovery strategies developed for species at risk are implemented within a specified time frame. They should reassess the adequacy of funding provided for recovery actions and preventive measures, and present clear commitments consistent with the funding provided.
- Fisheries and Oceans, in consultation with other parties, should clarify its role and establish clear commitments for recovery of freshwater fish species at risk.
- With advice from the Federal Wetlands Forum, the federal government should identify a lead department for monitoring, evaluating, and reporting on federal actions related to wetlands.
- Environment Canada should prepare a strategy for effectively managing national wildlife areas and migratory bird sanctuaries in the basin.
- Environment Canada, with the participation of other federal organizations, should develop a federal strategy for all federal habitat stewardship programs in the basin.

5.1.26 To improve its reporting to Parliament and the public on the status of species and spaces at risk, the trends in their status, and the targets and results of its programs for their protection and recovery, the federal government should ensure the following:

- The department identified as the lead for wetlands should expand reporting on wetlands in the basin to include information on federal funding for wetlands conservation, the state of wetlands, and related trends in their status.
- Environment Canada should report regularly to the public on the state of national wildlife areas and migratory bird sanctuaries in the basin. Areas for reporting would include the state of their environmental

health, public access and use, scientific research, and enforcement activities.

- Environment Canada, with the participation of other federal departments and agencies, should produce an annual report on all federal habitat stewardship activities in the basin. The report should contain information on progress toward targets, the state of habitat and related trends, and longer-term outcomes so the net benefit of federal stewardship programs can be determined.

(See Summary for departmental responses.)

5.2 Protecting and Recovering Species at Risk

The issue

5.2.1 Species at risk are good indicators of the state of wildlife habitat and the health of our environment. Species at risk are our “canaries in the coal mine.” There are almost 160 species at risk in the Great Lakes and St. Lawrence River basin—over 40 percent of all species at risk in Canada (May 2001).

5.2.2 A diversity of plants, mammals, and aquatic species helps to maintain the health and integrity of our environment. The loss of one or two key species that are fundamental to an ecosystem can severely disrupt it. The cumulative loss of species over time can make an ecosystem fragile and unable to adapt to change. One or two species lost may not seem significant, but continued losses of species over time degrade nature and, ultimately, our quality of life.

5.2.3 The loss or degradation of habitat has put many species at risk. Overhunting, overfishing, air and water pollution, and invasive species have all put species at risk. But the most common threat is the loss or degradation of habitat. For example, ongoing clearing of Carolinian forest habitat in southern Ontario has helped to put the Acadian flycatcher (a forest songbird) on the endangered list. The loss of wetlands habitat in the basin has contributed to the decline of species such as the king rail (a marsh bird) and the eastern massasauga rattlesnake.

5.2.4 Species are listed at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Its risk categories are based on the level of risk to survival of the species; the list ranges from species of special concern to those that have become extinct.

The federal role

5.2.5 Federal departments and agencies, particularly Environment Canada, Fisheries and Oceans, and Parks Canada Agency, deliver programs that are aimed at increasing public awareness of species and spaces at risk, promoting stewardship, conserving and protecting habitat, and recovering species at risk. Environment Canada provides a secretariat to COSEWIC and to the Recovery of Nationally Endangered Wildlife program.

5.2.6 At present there is no federal legislation that outlines federal responsibilities for protecting and recovering species at risk. However, the government is responsible for migratory bird species listed in the *Migratory Birds Convention Act*; fisheries species and marine mammals; and species such as plants, amphibians, and reptiles found on federal lands. Provincial governments are responsible for species outside federal lands and for migratory birds not covered by the *Migratory Birds Convention Act*.

5.2.7 In 1996, the federal, provincial, and territorial governments signed the National Accord for the Protection of Species at Risk in Canada. They agreed to develop recovery plans for endangered species under their own jurisdictions not more than a year after COSEWIC lists them and, for threatened species, within two years. They also agreed to “implement recovery plans in a timely fashion.” The national recovery process is

co-ordinated by the federal–provincial–territorial Canadian Endangered Species Conservation Council established under the National Accord.

5.2.8 Recovery plans are important tools for organizing and directing recovery efforts. They set objectives, outline specific actions, and say who is responsible for taking those actions (either the federal or a provincial government, or organizations outside government). Leading the recovery of a species at risk includes preparing a recovery plan, setting up recovery teams, co-ordinating recovery actions, and monitoring and reporting the results.

5.2.9 The proposed *Species at Risk Act* would make Environment Canada responsible for the protection and recovery of migratory birds at risk and species at risk on federal lands (other than national parks). The Parks Canada Agency would be responsible for the protection and recovery of species at risk that are found in national parks, and Fisheries and Oceans for aquatic species. Under the Act, once a species was listed as threatened, endangered, or extirpated, prohibitions to prevent it from being killed or harmed and its residence from being destroyed would apply automatically where the species was under federal jurisdiction. The Act would also allow for a “safety net” where the species was not under federal jurisdiction: if the Minister of the Environment believed that a listed species was not protected by provincial or territorial legislation or regulation, the Minister would have to recommend to the Governor-in-Council that it order the prohibitions.

5.2.10 The proposed legislation would also incorporate the National Accord provisions on developing recovery plans, making the plans mandatory. However, the legislation would not make their implementation mandatory.

Our audit questions

5.2.11 Is the federal government meeting its commitments to develop and carry out recovery plans and to put forward federal legislation on species at risk? Are federal recovery efforts managed well? Are recovery actions working?

The story

Recovery plans are missing or not complete

5.2.12 Since 1988, the majority of recovery actions in Canada have been co-ordinated by the committee for the Recovery of Nationally Endangered Wildlife (RENEW). The committee, which has focussed primarily on terrestrial species, includes federal, provincial, and territorial wildlife directors and representatives of three national conservation organizations. Since the signing of the National Accord for the Protection of Species at Risk in 1996, RENEW has been in a transition period, redesigning its approach to co-ordination of recovery actions and expanding to include other species.

5.2.13 Between 1988 and 2000, RENEW approved 22 national recovery plans, 5 of them for species in the basin. By the end of 2000, another 30 plans (including 5 ecosystem plans) were at various stages of development; 16 of those are for species in the basin. The 21 plans that apply to the basin cover 35 of its 83 threatened and endangered species (42 percent).

5.2.14 There are 50 species in the basin under federal jurisdiction that are threatened or endangered; in 2000, 23 of them (46 percent) had no recovery

Did you know?

- Number of species at risk in the basin in May 2001: **157**
- Number of these that are threatened or endangered: **83**
- Number of threatened and endangered species under federal jurisdiction: **50**
- Percentage of these that are covered by a recovery plan: **54**
- Percentage of these that have stable or improving populations: **10**
- Amount the federal government spent on species-at-risk recovery actions and habitat stewardship in the basin in 2000–01: **\$2.7 million**
amount it spent per year in the late 1990s: **\$1 million**
amount it spent per year in the early 1990s: **\$250,000**
- Amount the federal government spent on species-at-risk recovery programs across Canada under the Recovery of Nationally Endangered Wildlife process, between 1988 and 2000: **\$9.2 million**
- Number of people it employed in recovery programs: **213**
- Number of national recovery plans developed over the last 12 years, including five ecosystem plans: **52**
- Amount the federal government expects to spend on species-at-risk recovery programs across Canada between 2000 and 2005: **\$180 million**
- Number of new recovery plans it plans to develop across Canada: **101**
- Number of related recovery actions it plans to implement across Canada: **48**

plan. These are rough estimates; there is no comprehensive inventory of all species on federal lands.

5.2.15 All 10 of the endangered and threatened migratory birds under federal jurisdiction in the basin have a recovery plan. But in 2000, six of the plans were still in draft form or needed updating.

5.2.16 There are 31 species at risk that are found on federal lands. In 2000, 13 of them (42 percent) were covered by a recovery plan.

5.2.17 Of the 9 endangered and threatened freshwater fish under federal jurisdiction in the basin, 4 are covered by a recovery plan; only one of those plans has been completed. This gap in recovery plans is due in part to the fact that historically, Fisheries and Oceans has not managed freshwater fish species at risk in the basin or acquired the necessary staff and expertise to do recovery work.

5.2.18 In the last two years, however, Fisheries and Oceans has been more active in the recovery of freshwater fish at risk in the basin. For example, in 2000 it got involved in the Sydenham River Ecosystem Recovery Program. The Sydenham River ecosystem (in southwestern Ontario) supports 12 species of fish and mussels that are threatened, endangered, or of special concern.

5.2.19 As Fisheries and Oceans becomes increasingly involved in the recovery of species at risk, including ecosystem recovery programs, it will need to clarify its role in relation to provincial roles. This will be especially important where a province has already been active in recovering or protecting a species of freshwater fish. Clarifying its role includes identifying who will be responsible and accountable for preparing and carrying out recovery plans, monitoring recovery actions, and reporting on results. (A broader discussion of Fisheries and Oceans' role in the basin is found in Subsection 6.5.)

5.2.20 The number of species under federal jurisdiction in the basin can be expected to change in the future as the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses and lists new species. The number of recovery plans can be expected to increase as a result of future recovery efforts.

Recovery efforts show mixed results

5.2.21 Despite the federal government's direct efforts and financial contributions, 40 percent of the threatened and endangered species under federal jurisdiction in the Great Lakes and St. Lawrence River basin continue to decline. Only 10 percent show stable or improving population trends. For the remaining 50 percent, population trends are not reported.

5.2.22 We recognize that the success of recovery actions depends on many factors, some of which are beyond the control of the federal government. The historic loss and degradation of habitat that has affected many species at risk cannot be reversed overnight. The state of knowledge of the threats facing species and our ability to overcome them are also factors.



Peregrine falcons, a species downlisted from endangered to threatened in 1999, can be viewed from the Cap Tourmente National Wildlife Area.

5.2.23 Successful recovery depends on the participation of many parties such as the federal government, provincial governments, non-government organizations, industry, and local landowners. Achieving buy-in and co-ordinating efforts among these parties can slow down the recovery, planning and implementation process. Furthermore, recovery plans are not binding and the lead organization and recovery teams often have no authority to ensure that they are carried out.

5.2.24 Those factors aside, we observed aspects of the federal government's approach to species recovery that in our view, have contributed to the mixed results. They include the absence of a comprehensive inventory of species under federal jurisdiction, a need to clarify who leads what, and until recently, underresourced recovery actions and inadequate mechanisms for priority setting and internal review.

5.2.25 There have been successes. For example, the peregrine falcon (found not just in the basin but across Canada) was downlisted in 1999 from an endangered to a threatened species. Although uplisted from vulnerable to endangered in 1996, the prothonotary warbler (a migratory bird on federal lands) shows some recent signs of recovery—the adult population grew from 20 in 1996 to 46 in 1999. And recovery efforts have led to better scientific knowledge of the beluga whale and its habitat and to more public awareness about species at risk (see case study, The St. Lawrence beluga whale—Recovering a species at risk). In addition, the status of three species of plants at risk on federal lands is stable or improving. Despite the successes, however, all of these species still face extinction in Canada.

Reporting on recovery actions is incomplete and inconsistent

5.2.26 We reviewed progress reports on the federal flagship programs in the basin—Great Lakes 2000 and St. Lawrence Vision 2000. We also looked at national reports issued by the RENEW committee. We found that neither provided complete and consistent information on the following:

- the extent to which recovery plans have been carried out and the types of recovery actions under way;
- estimated populations of species, and population trends; and
- the state of habitat of species at risk.

Federal legislation on species at risk has not been passed

5.2.27 The federal government has made several commitments to pass federal legislation on species at risk. Meeting those commitments continues to be a challenge; the government has made two attempts. In 1997, the proposed *Canadian Endangered Species Protection Act* died on the order paper when a federal election was announced, as did Bill C-33 (the proposed *Species at Risk Act*) when the fall 2000 election was called. Bill C-5, a revised version of the proposed *Species at Risk Act*, was introduced in the House of Commons in February 2001.

The St. Lawrence beluga whale—Recovering a species at risk

Location. In the summer, the St. Lawrence beluga population is distributed along a 160-kilometre stretch of the St. Lawrence River near the Saguenay River, from Saint-Jean-Port-Joli to as far downstream as Forestville. In winter, it extends northeast into the Gulf of St. Lawrence.

Status. In 1983, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed the beluga as endangered, given the continuing and significant decline in its population. The beluga's status was re-evaluated in 1997 but remained unchanged.

Reasons for the decline. Hunting played a big role in the initial decline of the beluga. Between 1880 and 1950, when the 400-year-old beluga fishery was most intensive, around 15,000 beluga were removed from the St. Lawrence. Today, factors believed to limit population growth are contaminants, marine traffic (including whale watching), and alteration of habitat by, for instance, the construction of dams on rivers draining into the St. Lawrence River. Their small population and low reproductive rate make the beluga vulnerable to oil spills and viral outbreaks. Climate change is considered a long-term threat.

Population trends. The St. Lawrence beluga population is estimated at 1,000, using the most recent methodology. It was estimated at about 900 in 1988. Participants in the recovery plan note that population survey results are not significant enough statistically to represent changes in the beluga population. A recent DNA study indicates a low genetic variation in the population, which may be slowing the rate of recovery. Monitoring will have to continue for some time before population trends can be confirmed with confidence.

Achievements. A significant factor in the recovery of the beluga whale has been the creation of the St. Lawrence River Beluga Protection Regulations of the *Fisheries Act* (1979); they prohibit the hunting, killing, chasing, or deliberate disturbing of beluga whales. Continuing protection and recovery efforts have led to a better scientific knowledge of the beluga and its habitat, more public awareness, the creation of the Saguenay–St. Lawrence Marine Park, and a reduction in contaminants entering the St. Lawrence River. Recovery efforts have involved many partners, including Fisheries and Oceans, Parks Canada Agency, Environment Canada, the World Wildlife Fund, Group for Research and Education on Marine Mammals, the St. Lawrence National Institute of Ecotoxicology, Université du Québec à Montréal, Dalhousie University, McMaster University, and Alcan Inc.

Challenges. The recovery plan is not binding; the recovery team has no authority to ensure that it is carried out. The success of recovery efforts depends on available resources and the good will of stakeholders. The recovery of the beluga will require long-term monitoring and funding. Unfortunately, recovery efforts since 1988 have relied primarily on uncertain, year-to-year funding.

New federal initiatives under way will not close all gaps

5.2.28 In its February 2000 Budget, the federal government announced \$180 million in national funding over five years for a new species-at-risk program (including stewardship initiatives). This is about nine times more funding than the government contributed for species recovery under the RENEW process from 1988 to 2000. Results expected from the new funding include better science and knowledge of species at risk, better listing, and recovery strategies for around 100 species at risk that are under federal jurisdiction.

5.2.29 The funding included \$2.7 million to Environment Canada, Fisheries and Oceans, and Parks Canada Agency for species recovery actions and habitat stewardship in the basin in 2000–01. The funds have been targeted over the next five years at getting federal species-at-risk legislation passed (\$2 million); strengthening COSEWIC (\$10 million); developing institutional support for the national species-at-risk program (\$15 million); a new Habitat Stewardship Program for Species at Risk (\$45 million); existing programs in Environment Canada, Fisheries and Oceans, and Parks Canada Agency for species under federal jurisdiction (\$95 million); and a new Interdepartmental Recovery Fund (\$13 million).

5.2.30 Despite this major increase in funding, the federal departments and agency involved in the program are concerned that there will be serious gaps. For example, recovery strategies may not be developed for all species under federal jurisdiction, and half of the strategies that are developed may not be carried out (or only partly). Furthermore, the limited funding for preventive measures will limit the government's ability to protect species of special concern from the risk of extinction. In addition, Agriculture and Agri-Food Canada has expressed concern that the new initiatives do not address the need for increased scientific work in biosystematics and taxonomy to identify and classify species at risk and to develop meaningful indicators of population trends (particularly for insects, arachnids, and fungi).

Reporting of results is expected to improve

5.2.31 Environment Canada, Fisheries and Oceans, and Parks Canada Agency have prepared a framework for co-operative management that outlines their roles and responsibilities. The framework also sets out mechanisms for assessing and reporting on progress. They include annual progress reports to Parliament, annual recovery reports, reports on the Habitat Stewardship Program for Species at Risk and on the Interdepartmental Recovery Fund, a five-year report on the status of wildlife, and a five-year evaluation.

5.2.32 The commitment to a five-year evaluation is particularly important: no formal evaluation of the federal government's species recovery efforts has ever been undertaken. But there is no provision for an interim evaluation that would focus on improving the design and delivery of the species-at-risk program as a whole. An interim evaluation would give senior management an early indication of what is working and what is not, and whether there are more innovative, cost-effective ways to achieve federal goals.

5.2.33 Performance indicators are balanced, clear, and meaningful. The federal government has developed comprehensive performance indicators for its new species-at-risk program. They include population trends of endangered and threatened species, percentage of endangered and threatened species under federal jurisdiction that have a recovery strategy, number of recovery actions undertaken, progress toward the goals set in recovery strategies and action plans, trends in protection of critical habitat, and trends in enforcement activities and related outcomes. If progress

measured by the indicators is reported consistently, it will be a significant improvement over current reporting.

Conclusion

5.2.34 Over the last decade, the federal government's efforts to recover species at risk have had mixed results. With the new species-at-risk program, funding for species protection and recovery will increase and recovery efforts should improve significantly.

5.2.35 In theory, once a scientific determination is made that a species is at risk, the recovery process is straightforward. A lead agency is identified, a recovery plan developed, the plan's actions carried out by various stakeholders, results tracked, and the plan adjusted. In practice, the scientific process is overburdened. In some cases, there is a need to clarify who leads what; the lead party cannot force unwilling partners to act; and, until recently, recovery efforts have been underresourced and results not measured and reported adequately.

5.2.36 Although the federal government has a preliminary list, it has not prepared a comprehensive inventory of all species under its jurisdiction that are at risk.

5.2.37 As Fisheries and Oceans gets more involved in recovery efforts for species at risk, it will need to clarify its role in relation to provincial roles. This will be especially important where a province has already been active in recovering or protecting a freshwater fish species at risk.

5.2.38 The federal government is entering a transition period, with changes in its program for protecting and recovering species at risk. While we are encouraged by the framework for measuring results of the new program, we think an interim evaluation is warranted.

Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	<p>Develop recovery plans for threatened and endangered species under federal jurisdiction.</p> <p>Achieve positive recovery trends for species at risk.</p> <p>Pass federal species-at-risk legislation (a national commitment with implications for the basin).</p> <p>Not allow new species to become threatened or their status to deteriorate to endangered.</p>	<p>The government has developed recovery plans for 54 percent of threatened and endangered species under its jurisdiction.</p> <p>It has achieved positive recovery trends for 10 percent of species at risk under federal jurisdiction.</p> <p>At the end of our audit, legislation was before Parliament for a third time.</p> <p>In May 2001, the Committee on the Status of Endangered Wildlife in Canada added two species in the basin to the endangered category and uplisted another from special concern to threatened.</p>

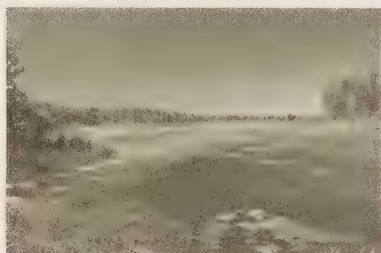
Assessing the government's performance

❷ Has the government applied good management practices?	Strengths	Weaknesses
	<p>The government has identified risks (threats) to species at risk.</p> <p>It has outlined its priorities in <i>Canada's Strategy for Protecting Species at Risk</i>.</p> <p>It uses a variety of tools in recovery programs.</p> <p>Its performance measures for the new species-at-risk program are balanced, clear, and meaningful. It has identified targets for the development of recovery strategies and implementation of recovery actions.</p>	<p>The government has not prepared a comprehensive inventory of species at risk on federal lands.</p> <p>It has not reported population trend information for 50 percent of species under federal jurisdiction in the basin.</p> <p>It has not evaluated its past efforts.</p>
❸ Has the government established good governance structures?		
	<p>The government's new co-operative management framework for the species-at-risk program outlines roles and responsibilities.</p> <p>Its future reporting mechanisms under the program are appropriate.</p> <p>Environment Canada's 2001–02 <i>Report on Plans and Priorities</i> lists time frames, resources, expected results, and targets for the program.</p>	<p>Fisheries and Oceans needs to clarify its role with Ontario and Quebec.</p> <p>The government's past reporting has been incomplete and inconsistent.</p>

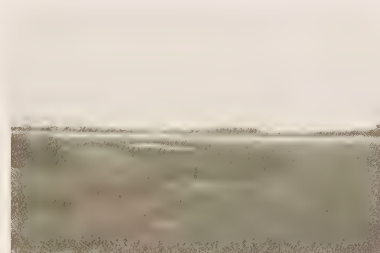
5.3 Conserving Wetlands

The issue

5.3.1 In the Great Lakes and St. Lawrence River basin, wetlands are under pressure from farming, urban development, and shoreline development. These activities can fragment, alter, degrade, or cause the loss of wetlands. Invasive species such as carp, purple loosestrife, and phragmites (common reed) also harm wetlands. Since the days of earliest settlement, more than 70 percent of wetlands in southern Ontario and the St. Lawrence River basin have been lost—in some areas, more than 95 percent.



Wetlands are one of the most productive ecosystems in the basin.



Many coastal wetlands in the basin have been lost or degraded since the first days of European settlement.

5.3.2 Wetlands are among the most productive ecosystems in the basin, providing habitat, food, and protection to many species. In the Great Lakes and St. Lawrence River basin these include species at risk, such as the spiny softshell turtle, the king rail (a marsh bird), Fowler's toad, and the eastern fox snake. Wetlands are also important to commercial and recreational fisheries—many species in the basin depend on wetlands for reproduction.

5.3.3 Wetlands can improve water quality, provide natural flood controls, store water in times of drought, recharge groundwater aquifers, and protect shorelines from storm damage. Wetlands also offer recreational and economic benefits by providing areas where people hike, birdwatch, canoe, fish, and hunt.

The federal role

5.3.4 Wetlands in the basin are generally under provincial jurisdiction. Where they are on federally owned lands—national wildlife areas and national parks, for example—they are protected by Environment Canada and the Parks Canada Agency. The federal government regulates hunting activities in migratory bird sanctuaries, which contain a variety of habitats, including wetlands. Migratory bird sanctuaries can be owned by the federal government, provincial governments, or private landowners. The federal government manages habitat only when sanctuaries are located on federal lands.

5.3.5 The federal government also protects against the loss of wetlands under section 35 of the *Fisheries Act* as well as the *Canadian Environmental Assessment Act*. Under the *Income Tax Act*, it encourages voluntary land donations and conservation easements involving ecologically sensitive lands, including wetlands, in return for income tax benefits.

5.3.6 The federal government provides funding and scientific advice to wetlands restoration projects, undertakes public awareness campaigns and outreach activities, participates in wetlands research projects, and supports training in wetlands restoration and environmental assessment. Selected wetlands restoration efforts in the basin are reflected in the federal Great Lakes 2000 and St. Lawrence Vision 2000 ecosystem programs and the Eastern Habitat Joint Venture (of the North American Waterfowl Management Plan). In the Great Lakes, wetlands are being restored under the Great Lakes Wetlands Conservation Action Plan, the first such plan produced under the 1993 Strategic Plan for Wetlands of the Great Lakes basin (there is no equivalent wetlands plan for the St. Lawrence River basin). The federal government has also prepared a federal policy on wetlands conservation. Provincial and local governments and organizations outside government also play a role in wetlands restoration in the basin.

Our audit questions

5.3.7 Does the federal government ensure that national wildlife areas and migratory bird sanctuaries are managed well?

5.3.8 Does it know to what extent it is meeting its goals and objectives for wetlands conservation in the Great Lakes and St. Lawrence River basin?

5.3.9 Does the federal government have enough information to make sound decisions about wetlands activities? Does it report the results of its efforts in the basin's wetlands?

The story

Important biological assets in the basin

5.3.10 In the geographic area covered by this audit there are 14 national wildlife areas (see Exhibit 5.2) and 21 migratory bird sanctuaries, covering over 22,800 hectares. Four of the wildlife areas are also "Ramsar" sites, indicating that they are recognized internationally under the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Several national wildlife areas have also been designated as important bird areas and monarch butterfly reserves. The Long Point National Wildlife Area is the core of the Long Point Biosphere Reserve.



Environment Canada's capacity to enforce restrictions in national wildlife areas is limited.



Because resources are limited, volunteers play an important role in delivering interpretation services in the Lac Saint-François National Wildlife Area.

Exhibit 5.2 National wildlife areas in the Great Lakes and St. Lawrence River basin



1 Eleanor Island (MBS)	10 Mississippi Lake (MBS)	BR Biosphere reserve
2 Wye Marsh	11 Lac Saint-François (RS)	IBA Important bird area
3 St. Clair (IBA, RS)	12 Îles de la Paix (MBS)	MBS Migratory bird sanctuary
4 Big Creek	13 Îles de Contrecoeur	MBR Monarch butterfly reserve
5 Long Point (BR, IBA, MBR, RS)	14 Cap Tourmente (IBA, RS)	RS Ramsar site
6 Mohawk Island	15 Îles de l'estuaire (MBS)*	
7 Wellers Bay	16 Baie de l'Isle-Verte (MBS, RS)*	* Outside geographic scope of audit.
8 Scotch Bonnet Island	17 Pointe-au-Père*	
9 Prince Edward Point (IBA, MBR)	18 Pointe-de-l'Est*	

Source: Canadian Wildlife Service, Environment Canada

National wildlife areas and migratory bird sanctuaries are at risk

5.3.11 The federal government is fully responsible for national wildlife areas. Yet Environment Canada lacks the personnel and financial resources to manage them effectively. Their environmental health is threatened as a result. We observed the following weaknesses in the federal government's care of national wildlife areas:

- Most management plans, including those for key wetlands such as Long Point, St. Clair, and Lac Saint-François, have not been updated since the early to mid-1980s. A management plan typically outlines objectives and goals for the national wildlife area and plans for enforcement, biological management, and public awareness activities. These plans also contain summaries of biological resources in the national wildlife areas, such as vegetation, mammals, birds, reptiles, amphibians, and fish.
- Environment Canada does not have comprehensive, up-to-date inventories of species living in national wildlife areas—including species at risk.
- There is limited monitoring and reporting of public access and use of national wildlife areas.
- The federal government undertakes limited scientific research in national wildlife areas. It has not assessed the stresses on them and the impact of those stresses on their environmental health.

- Environment Canada does not sufficiently enforce its regulations under the *Canada Wildlife Act* as they pertain to national wildlife areas.
- The federal government risks not meeting its international commitment to maintain the ecological character of each Ramsar site in the basin and ensure that the natural state of each is preserved for future generations.

The case study Management of selected national wildlife areas in the basin gives further details.

Management of selected national wildlife areas in the basin

In the Ontario region, the total operating budget for all 10 national wildlife areas in 1999–2000 was \$83,000, with four full-time-equivalent staff devoted to wildlife and habitat management. With so few people managing 10 areas, management practices have not been consistent. Only the Long Point and St. Clair national wildlife areas have federal staff on site; Environment Canada visits the others about once a month. In contrast, in 1979 the Long Point National Wildlife Area alone employed three full-time wardens, two part-time wardens, one site biologist, one habitat technician, and 12 students.

In the Quebec region, the total operating budget for all eight national wildlife areas in 1999–2000 was \$102,000, with five full-time staff devoted to wildlife and habitat management. In Quebec, we also observed that Environment Canada lacks the capacity to manage all its national wildlife areas effectively. For example, the Lac Saint-François National Wildlife Area, a Ramsar site, has a management plan dating back to 1986 and no federal staff on site.

Given that the mandate of national wildlife areas is exclusively for protection of wildlife and not for recreational use, there are not many opportunities to generate revenue. Some—for example, Cap Tourmente in Quebec—have been able to combine wildlife protection with activities such as public education and outreach programs that produce revenue.

National wildlife areas are receiving more visitors as they become better known, placing more pressures on these already sensitive environments. Furthermore, designating them as Ramsar sites and/or important bird areas has increased the demand for more public access and more information (particularly on Canada's fulfilment of international agreements). The federal government has not increased its resources in these areas to meet the demands.

5.3.12 We have similar concerns about migratory bird sanctuaries. In particular, Environment Canada does not have comprehensive, up-to-date inventories of species that use migratory bird sanctuaries—including species at risk. It has not assessed or reported stresses on these areas, and it does not adequately enforce regulations under the *Migratory Birds Convention Act* as they pertain to migratory bird sanctuaries. In addition, it is not using these designated sanctuaries to their full potential as tools to promote stewardship; they are not integrated with federal stewardship programs.

Meeting targets for wetlands in the basin

5.3.13 The federal government claims that since 1993 its efforts, with those of its provincial partners and others outside government, have created, reclaimed, or rehabilitated over 14,100 hectares of wetlands in the Great

Lakes basin and secured over 4,400 hectares. This represents 62 percent of the 30,000-hectare goal set in the 1993 Strategic Plan for Wetlands of the Great Lakes Basin.

5.3.14 Commitments under the St. Lawrence Vision 2000 program cover wildlife habitat in general and not wetlands specifically. However, wetlands are included in the program's targets for habitat protection. Between 1988 and 1998 (phases I and II), the program's partners claim to have protected 12,200 hectares of wildlife habitat in the St. Lawrence River basin (200 hectares more than the target). As part of the St. Lawrence Vision 2000 program's phase III (1998 to 2003), program partners claim to have protected 100,700 hectares of habitat at March 2001 (the goal for phase III is 120,000 hectares).

5.3.15 The targets of Great Lakes 2000 and St. Lawrence Vision 2000 have been met in part through federal contributions to finance wetlands projects in the basin. Funding for these projects came from the Great Lakes 2000 Cleanup Fund, the EcoAction Community Funding Program, and the Community Interaction program. The Ecological Gifts Program has also contributed to conserving wetlands in the basin.

5.3.16 The biggest federal contribution has been through the Great Lakes 2000 Cleanup Fund, which gave roughly \$23.9 million to habitat restoration projects from 1990 to 1999. Projects that focussed on wetlands got \$11.6 million of that, or 48 percent. The two largest Cleanup Fund projects have been the restorations of Cootes Paradise and Hamilton Harbour (\$7.2 million) and the Oshawa Second Marsh (\$1.6 million).

5.3.17 Wetlands conservation is also being accomplished through programs outside of the basin's ecosystem initiatives, including the Eastern Habitat Joint Venture (of the North American Waterfowl Management Plan). From 1986 through 2000, roughly 244,000 hectares of predominately wetlands habitat in southern Ontario and southern Quebec were protected through this joint venture.

5.3.18 The benefits of wetlands restoration projects include community participation, increased public awareness of wetlands and the environment in general, and better knowledge of wetlands restoration techniques. Increased public awareness is a stated goal of both the Federal Wetlands Policy and the Great Lakes Wetlands Conservation Action Plan.

5.3.19 Important lessons learned from wetlands restoration projects include the following:

- Restoring the biological diversity of degraded wetlands is a long-term endeavour that can be hard to achieve.
- Restoring wetlands is more expensive than preventing their degradation in the first place.
- Long-term monitoring is needed to determine whether restoration activities are working.
- Influencing behaviour in the broader watershed of a wetland is essential to the long-term success of restoration projects.

- Wetlands restoration is an emerging science that involves adaptive management.

Are wetlands improving or getting worse?

5.3.20 Although the federal government is contributing to wetlands restoration and protection in the basin, recent overall trends are unknown. Less information is available on some wetlands than on others in the basin; there are important gaps in information on their size, losses or gains, and state of health. Where information has been compiled, inconsistent methods have been used. This makes it hard to compare the state of wetlands in different areas and to determine trends in their health (see Exhibit 5.3).

Did you know?

- Number of national wildlife areas and migratory bird sanctuaries in Ontario and Quebec: **56**
ranging from James Bay to the Gulf of St. Lawrence, number of hectares they cover: **about 109,000**
number of full-time people taking care of them: **9**
total operating and maintenance budget in 1999–2000: **\$185,000**
total operating and maintenance budget per hectare: **about \$2**
- Percentage of national wildlife areas designated as Ramsar sites that have management plans dating from the early to mid-1980s: **75**
- Number of species at risk in the Long Point National Wildlife Area (NWA): **49**
number in the Lac Saint-François NWA: **35**
number in the Cap Tourmente NWA: **17**
number in the St. Clair NWA: **13**
number in the Prince Edward Point NWA: **11**

5.3.21 As a result, the government cannot determine and report the net benefit of its contribution or the net change in the state of the basin's wetlands. It is unable to determine and report whether it is achieving the objective stated in the Strategic Plan for Wetlands of the Great Lakes Basin, namely, "no net loss of Great Lakes coastal wetlands."

Closing gaps in the information on wetlands

5.3.22 The federal government is taking part in several initiatives to close the gaps in information on wetlands and resolve the inconsistencies in data collection. For example, Environment Canada and Fisheries and Oceans both participate in the Great Lakes Wetlands Consortium. Led by the Great Lakes Commission, a binational agency for the eight Great Lakes states with associate member status for Ontario and Quebec, the Consortium is a large-scale collaborative effort to design a long-term monitoring program for Great Lakes coastal wetlands. Environment Canada is also involved in developing a Web-based inventory of wetlands in the Great Lakes.

5.3.23 In Quebec, the St. Lawrence Centre of Environment Canada is leading a program to record how wetlands vegetation along the St. Lawrence River has changed since 1980. Researchers will use that information to try to identify possible causes of change, such as changing water levels, erosion, encroachment, and habitat restoration.

5.3.24 It will be important that these initiatives use consistent methods to collect information so the state of wetlands and the related trends can be compared throughout the basin.

Contribution of legislation not well understood

5.3.25 The *Fisheries Act* and the federal fish habitat policy deal with the protection of fish habitat in the basin, which includes wetlands. However, Fisheries and Oceans has not assessed whether it is achieving the goal of no net loss of fish habitat, and it has not measured its progress in protecting fish habitat. Although Fisheries and Oceans has a Habitat Management Program Renewal project under way to revamp its management of fish habitat, it is too early to say what impact it will have on wetlands.

Exhibit 5.3 Are wetlands improving or getting worse?

Wetlands	Percentage lost	Time period
Lake Superior	Not available	
St. Marys River	No significant losses reported although recent losses have occurred	
Lake Michigan	Not available	
Lake Huron	Not available	
Severn Sound	18% to 68% in certain areas	1951 to early 1990s
St. Clair River	Not available	
Lake St. Clair	42%	Pre-settlement to 1978
Detroit River	Not available	
Lake Erie	Not available	
Point Pelee Marsh, Lake Erie	71%	1880 to mid-1970s
Niagara River	Not available	
Lake Ontario	Up to 100% in certain areas	Pre-settlement to 1990
Between Niagara River and Toronto	73% to 100%	Pre-settlement to 1979
Between Toronto and Presqu'île	32%	Pre-settlement to 1980s
Between Presqu'île and Bay of Quinte	8%	Pre-settlement to 1980s
Bay of Quinte to St. Lawrence River	43%	Pre-settlement to 1980s
St. Lawrence River (Ontario)	Not available	
St. Lawrence River (Quebec)	Up to 29% in certain areas	1945 to 1978

5.3.26 Environment Canada developed and provided training materials on how the *Canadian Environmental Assessment Act* applies to wetlands. However, the federal government has done little analysis of the extent to which the Act has contributed to protecting wetlands or mitigating losses.

Federal Wetlands Forum recently established

5.3.27 No one federal department or agency is responsible for monitoring, evaluating, and reporting on all federal activities related to wetlands. A Federal Wetlands Forum was established recently to provide a co-ordinated approach to achieving federal objectives for wetlands conservation. The

Forum is currently preparing an action plan to guide its activities, including a proposed review of the positive and negative impacts of federal programs and policies on wetlands.

Reporting in the basin is fragmented

5.3.28 Information on wetlands is provided in a variety of reports. The most comprehensive information is in the two progress reports prepared so far under the Great Lakes Wetlands Conservation Action Plan. In a reader-friendly way, they document progress toward goals and milestones in the action plan, including key activities and accomplishments.

5.3.29 However, the action plan reports cover only the Great Lakes part of the basin. Moreover, they omit certain facts that would make for more complete and transparent reporting. For example, the reports do not cover the status and trends of wetlands. Nor do they document the impact on wetlands of such federal tools as the habitat protection provisions of the *Fisheries Act*, environmental assessments, and the Ecological Gifts Program. And the reports do not show the federal government's financial contributions to the action plan achievements.

Invasive species are threatening wetlands

5.3.30 Invasive plant species—such as purple loosestrife, phragmites, European frog-bit, and glossy buck thorn are threatening the biological diversity of wetlands in the basin. These species develop into monospecific stands—large areas of just one species that crowd out other wetlands species. Wetlands in the Basin are also susceptible to aquatic invasive species such as zebra mussels and carp.

5.3.31 The Canadian Wildlife Service of Environment Canada is the most active federal presence in combating the threat of invasive species in wetlands. However, federal efforts so far have not been co-ordinated and have not been adequate to manage the threat of invasive species. An interdepartmental committee on invasive species was established in January 2000 to clarify the roles and responsibilities of federal departments and develop a national strategy for dealing with invasive species. At the time of this audit, the national strategy had not been completed.

Conclusion

5.3.32 National wildlife areas and migratory bird sanctuaries are important biological resources in the basin. They contain a wide variety of habitats, including wetlands. We are concerned about the way they are managed. We conclude that the ecological integrity of these areas is at risk and their potential as a conservation tool is unfulfilled. Environment Canada lacks the personnel and financial resources to manage them well.

5.3.33 Since the basin was first settled, many wetlands have been lost or degraded. In response, the federal government has participated in restoring and protecting wetlands. While these activities are encouraging, there is not enough information on the current status of wetlands to say whether it is improving or getting worse. Environment Canada and Fisheries and Oceans



Phragmites (common reed) is an invasive species that threatens wetlands throughout the basin.

are involved in efforts to improve the information on wetlands in both the Great Lakes and the St. Lawrence River.

5.3.34 In our view, the progress report of the Great Lakes Wetlands Conservation Action Plan is a useful report. However, it could be expanded to provide a more complete picture of federal activities and their results.

5.3.35 There is no single federal department or agency formally responsible for wetlands. Designating a lead department or agency would strengthen accountability for monitoring, evaluating, and reporting federal action on wetlands.

Our audit objectives and main findings

Holding the federal government to account

1 Has the government fulfilled its commitments?

Commitments

Restore and protect 30,000 hectares of wetlands in the Great Lakes basin by 2020.

Protect 132,000 hectares of habitat, including wetlands in the St. Lawrence River basin (phases I, II, and III of St. Lawrence Vision 2000).

Increase public awareness and commitment to protecting wetlands.

Results

Combined efforts of federal and provincial governments and non-government organizations have restored and protected 18,500 hectares.

Combined efforts of federal and provincial governments and non-government organizations have restored and protected almost 113,000 hectares (March 2001).

The government has encouraged public participation in restoration and protection initiatives, increased public awareness of wetlands, and improved understanding of wetlands restoration techniques.

Assessing the government's performance

2 Has the government applied good management practices?

Strengths

The government knows the risks and threats to wetlands.

Great Lakes 2000 has clear priorities and expected results (targets) for wetlands.

St. Lawrence Vision 2000 has clearly stated priorities and expected results (targets) for habitat, including wetlands.

The government is applying a wide range of tools (such as protected areas, funding programs, education and awareness, research) to conserve wetlands.

Weaknesses

The government is lacking information on the number and size of wetlands, up-to-date trends in wetlands losses and gains, and the quality and health of wetlands.

It evaluated, in a limited way, certain tools (such as legislative provisions).

Environment Canada lacks the personnel and financial resources to manage national wildlife areas and migratory bird sanctuaries effectively.

Our audit objectives and main findings

Assessing the government's performance		
<p>❶ Has the government established good governance structures?</p>	<p>The two progress reports under the Great Lakes Wetlands Conservation Action Plan document in a user-friendly and transparent way the progress toward goals and milestones established in the action plan. However, they focus only on the Great Lakes basin.</p> <p>Federal contributions to restore and protect wetlands (for example, through Great Lakes 2000 Cleanup Fund, Community Interaction program) are accounted for adequately.</p>	<p>The government lacks summary reporting on the status and trends of wetlands, the impact of federal tools (for example, <i>Fisheries Act</i>, <i>Canadian Environmental Assessment Act</i>, and Ecological Gifts Program), and federal contributions to conserve wetlands.</p>

5.4 Conserving Habitat Through Stewardship

The issue



Stewardship can be as simple as using fences to keep cattle away from streams and wetlands.

5.4.1 The loss or degradation of habitat has affected roughly 80 percent of the species at risk in Canada. Activities that conserve habitat can therefore be important to protecting and recovering species at risk and ensuring that others are not threatened. These activities range from enhancing habitat (planting trees, cleaning up marshes and shorelines, installing nesting boxes) to securing habitat (by using conservation easements, for example, which may restrict development in areas of wildlife habitat in exchange for tax benefits to the donor).

5.4.2 Stewardship is the term the federal government uses for voluntary actions that individuals, communities (including Aboriginal communities), industries, and non-profit organizations undertake to help conserve habitat. Through various stewardship programs, the federal government encourages voluntary actions by providing financial incentives, rewards, and recognition. Stewardship programs can also include public education and outreach. The federal government has stated that stewardship is its preferred approach to conserving habitat for the protection and recovery of species at risk.

5.4.3 Examples of stewardship activities in the Great Lakes and St. Lawrence River basin that benefit species at risk include the following:

- Encouraging private landowners to protect woodland habitat that certain migratory birds at risk need for survival—the hooded warbler and acadian flycatcher, for example.
- Installing nest boxes for species of birds at risk, such as the prothonotary warbler.
- Erecting fences that keep cattle out of streams and ponds to protect shoreline and wetlands habitat.

The federal role

5.4.4 All levels of government, including the federal government, play an important role in encouraging stewardship. Private landowners, organizations outside government, natural resource industries, and Aboriginal groups also encourage and carry out stewardship activities.

5.4.5 A number of federal departments and agencies promote stewardship in the Great Lakes and St. Lawrence River basin, including Environment Canada, Fisheries and Oceans, Agriculture and Agri-Food Canada, and Parks Canada Agency. Environment Canada has the leading role. One of the stated commitments of the National Accord for the Protection of Species at Risk is to recognize, foster, and support effective and long-term stewardship by resource users and managers, landowners, and other citizens.

Our audit questions

5.4.6 What commitments has the federal government made to encourage stewardship? What is it doing to keep those commitments?

5.4.7 Is the government using good management and governance practices in its Habitat Stewardship Program for Species at Risk?

5.4.8 Does it have enough information on habitat to make good stewardship decisions? Does it report the achievements of stewardship programs in the basin?

The story

The federal government promotes a voluntary approach

5.4.9 Overall, the federal government owns and manages very little of the land in the Great Lakes and St. Lawrence River basin. Including protected areas such as national parks and national wildlife areas, federal land accounts for about one percent.

5.4.10 The federal government has recognized that to conserve habitat and protect and recover species at risk, it has to influence what happens on the land it does not own. To do this, it has made stewardship one of the three priorities of its national strategy to protect species at risk. To that end, it is involved in 15 programs and initiatives that in one way or another support stewardship. These programs, collectively, use a range of techniques including financial support and incentives, rewards and recognition, and education and outreach services.

5.4.11 Examples of stewardship programs and initiatives involving the federal government include funding programs such as EcoAction, the Great Lakes 2000 Cleanup Fund, and the Community Interaction program that support a variety of environmental priorities, including stewardship; programs that focus specifically on the stewardship of habitat, such as the EcoGifts Program and the Habitat Stewardship Program for Species at Risk; public outreach activities such as those related to Parks Canada Agency's approach to park ecosystem management; and support for rewards and recognition programs such as Countryside Canada and the Forest Stewardship Recognition Program. The case study Oshawa Second Marsh—Lessons learned from a successful partnership provides a good example of how stewardship works.

The new Habitat Stewardship Program for Species at Risk

5.4.12 The federal government introduced its Habitat Stewardship Program for Species at Risk in summer 2000. This is the most significant federal stewardship program for species at risk announced so far, with \$45 million allocated across Canada over five years. The program supports the promotion of land use practices that maintain habitat critical to recovering threatened and endangered species. It is also a preventive program, helping to carry out plans for managing species of concern before they become species at risk. Environment Canada, Fisheries and Oceans, and Parks Canada Agency manage the program together.

5.4.13 The Habitat Stewardship Program for Species at Risk is a “directed” program, funding only projects aimed at identified priorities. Projects must meet specific eligibility requirements; they must also apply directly to existing recovery or action plans for threatened or endangered species or to existing management plans for species of special concern. The program will provide long-term funding (such as three years) for eligible projects.



The federal government has supported many stewardship initiatives such as this one in southwestern Ontario.

Oshawa Second Marsh—Lessons learned from a successful partnership

The Oshawa Second Marsh has been described as the best remaining example of a cattail marsh along the western shore of Lake Ontario. Since the early 1970s, human activities have degraded the marsh significantly, mainly by the land use in the surrounding watershed.

Many partners in the community have helped to restore the marsh. Environment Canada has provided leadership and financial support through the Great Lakes 2000 Cleanup Fund and EcoAction Community Funding Program.

Recently, each partner has been establishing its own niche, assuming responsibility for the efforts in its area of expertise. At the same time, they all recognize the importance of continuing to share information.

The restoration efforts have been a community success. The partnership has reached out to the public and garnered public, business, and municipal support. There is widespread awareness about the marsh in the community. School groups, volunteers, and cub and scout groups have participated; 200 to 300 school children visit the marsh each year.

The Oshawa Second Marsh restoration project is an example of an ecosystem-based approach—the entire ecosystem benefits, not just targeted species. The marsh is not being restored to benefit only migratory waterfowl or migratory shorebirds. They will benefit, but as inhabitants of a wetland restored to health.

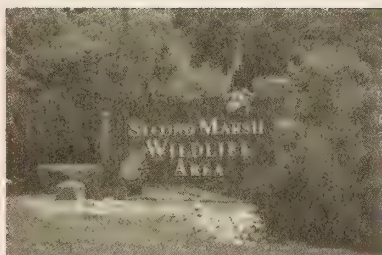
The partners have recognized the importance of adaptive management—learning as they go. Restoring and maintaining the delicate balance of a healthy wetlands ecosystem has proved to be a complex challenge. It is clear that no matter what is done to restore the marsh, success in the long run will depend on how the entire watershed is managed. The management and stewardship of the surrounding watershed are key to restoring and sustaining a healthy marsh and are the current focus of the partners' efforts.

The federal government's funding of \$1.7 million over 10 years (from the Cleanup Fund and EcoAction) has been an invaluable support for the necessary but less satisfying restoration efforts (such as dredging) that other partners might not have funded. However, the volunteer organizations in the partnership are concerned about having no core funding to cover overhead costs and sustain the present network in the future.

5.4.14 Our review of the program found that it features many of the elements of good management. Our concern is that performance targets have yet to be established for the program. This includes targets for recovering species at risk and preventing new species from being listed. Environment Canada has informed us that once critical habitat is identified, the program will set those targets.

Evaluation and reporting of longer-term outcomes can be improved

5.4.15 We reviewed a sample of stewardship projects that received financial support from the Great Lakes 2000 Cleanup Fund, EcoAction Community Funding Program, the Community Interaction program, and the Habitat Stewardship Program for Species at Risk. We found that those projects have a significant amount of information on habitat, and they use it to set priorities and target stewardship activities and habitat conservation efforts.



Many partners have been restoring the Oshawa Second Marsh for over 25 years.

Did you know?

- Percentage of species at risk that are affected by habitat loss or degradation: **80**
- Percentage of Ontario and Quebec land that the federal government owns: **about 1**
- Number of federal departments and agencies that are involved in stewardship programs in the basin: **8**
- Number of stewardship programs and initiatives in the basin that involve the federal government: **15**
- Number of indicators that are used to measure and report on stewardship activities: **25**
- Number of reports that summarize results of federally supported stewardship activities: **0**

5.4.16 Our review of project reports identified over 25 performance measures that are used, ranging from habitat restored to the number of “handshake agreements” with landowners. At the project level, project partners are measuring and reporting on performance. However, there is no summary reporting of the results achieved through the projects. To get a complete picture of the stewardship activities funded through these programs, for example, a person would have to search through the records of each funding program. This lack of summary-level reporting makes it hard to determine the full scope and cost of federally funded activities and the results they have achieved.

5.4.17 With the exception of the projects funded under the new Habitat Stewardship Program for Species at Risk, we are concerned about the limited monitoring and reporting of the longer-term outcomes of stewardship projects. These outcomes include the success of restoration and planting projects, for example, and the fate of habitat protected through handshake agreements. One promising approach that Agriculture and Agri-Food Canada is using in its Countryside Canada program is a before-and-after survey that aims to measure the increase in awareness of and participation in stewardship activities in the agriculture sector.

5.4.18 One indicator typically reported at the project level is the number of hectares of habitat restored or protected. However, there is limited monitoring and reporting of overall loss and degradation of habitat. This makes it difficult to determine whether the habitat conserved through stewardship projects is offset by habitat losses and degradation caused by urbanization, agricultural practices, and invasive species, for example. There is also limited reporting of habitat loss at the basin-wide level, which makes it difficult to determine the net benefit of federal efforts and to know whether the state of habitat in the basin is getting better or worse.

5.4.19 We also reviewed the Wetlands/Woodlands/Wildlife (3W) Program (part of the Canada–Ontario agriculture green plan). This was a successful program that prompted many farmers in the basin to adopt sustainable farming practices. Unfortunately, many of the lessons learned in delivering the program were not captured, and longer-term outcomes have not been assessed.

No cohesive federal approach to stewardship in the basin

5.4.20 In addition to looking at the management of specific federal programs that support stewardship, we looked more broadly at how the federal government manages its overall approach to stewardship. We found that there is no federal strategy to guide its efforts in the basin. A strategy would ensure that the individual programs were focussed on complementary goals and their results could be reported consistently.

5.4.21 At the national level, the Canadian Wildlife Service and its provincial and territorial partners began preparing a Canada-wide stewardship action plan in 1999. The purpose of the action plan is to promote and guide the stewardship efforts of the federal, provincial, and territorial governments; the

natural resources sectors; and others. At the end of our audit, consultations were planned to develop the action plan further and complete it in the spring of 2002. Further, in its 2001–02 *Report on Plans and Priorities*, Environment Canada noted that one of its priorities is to develop a natural legacy agenda in collaboration with other government departments, provincial and territorial governments, and other partners. The purpose of this agenda will be to advance conservation and stewardship of Canada's landscapes and seascapes. Whether these initiatives will serve as a suitable strategy for linking individual federal stewardship efforts remains to be seen.

Conclusion

5.4.22 The federal government owns less than one percent of land in the basin. It has recognized that to conserve habitat in the basin as whole, it has to influence what happens on the 99 percent of land that it does not own. To do this, a variety of federal departments and agencies are involved in 15 stewardship programs that encourage landowners to voluntarily conserve habitat.

5.4.23 The new habitat stewardship program has elements of successful management.

5.4.24 The performance of federally funded stewardship projects is measured and reported, but there is limited reporting of their longer-term outcomes. There is also limited reporting of habitat losses and the extent to which they offset gains made by stewardship projects. This makes it difficult to determine the net benefit of stewardship projects and to know whether the state of habitat in the basin is getting better or worse.

5.4.25 The federal government does not have a strategy to guide its stewardship efforts in the basin. Nor does it produce summary reporting of its efforts, their costs, or the results they achieve.

Our audit objectives and main findings

Holding the federal government to account

① Has the government fulfilled its commitments?

Commitments

Promote and encourage practices leading to the preservation and enhancement of the environment.

Results

Stewardship is one of three priorities identified in the National Strategy for Protecting Species at Risk.

Eight federal departments and agencies are involved in 15 stewardship programs in the basin.

The government is achieving results, but it is very difficult to get an overall picture of its performance as there is no meaningful summary-level information on results of federal stewardship programs.

Our audit objectives and main findings

Assessing the government's performance

❷ Has the government applied good management practices?	Strengths	Weaknesses
	<p>The government has significant amounts of information on habitat at the project level.</p> <p>It is measuring and reporting activities and results at the project level.</p> <p>The new Habitat Stewardship Program for Species at Risk has elements of successful management.</p>	<p>The government does limited reporting on longer-term outcomes and ongoing habitat loss.</p> <p>It has no meaningful summary-level information on results of its stewardship programs.</p>
❸ Has the government established good governance structures?		
		<p>The government lacks a basin-wide or national strategy to guide its stewardship programs.</p>

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FISHERIES

6.1 Overview and Recommendations



Source: Bruce Litteljohn

6.1.1 The Great Lakes and the St. Lawrence River supplied fish to Aboriginal groups long before the arrival of European settlers. They supported flourishing commercial and recreational fisheries throughout the 19th century and well into the 1920s. From the 1920s to the 1950s, the fisheries declined as a result of intensive commercial fishing and the appearance of the parasitic sea lamprey. The decline continued as pollution levels and loss of fish habitat increased. Some fish stocks such as lake trout have shown signs of recovery, but not to their historic levels.

6.1.2 There are many threats to the sustainability of the basin's freshwater fisheries resource. One of the biggest threats is invasive aquatic species. Once a species becomes established, it changes the aquatic ecosystem forever. Invasive aquatic species can be put in the water purposely or inadvertently, arrive by natural migration or, more often, hitchhike on a ship. The sea lamprey and the zebra mussel are just two of close to 160 invasive aquatic species that have found their way into the basin since the 1800s, with devastating effects on fish and the ecosystem.

6.1.3 Another major threat is damage to fish habitat—the places where fish spawn, feed, grow, and live—caused by physical damage along shorelines or by effluents such as municipal sewage and industrial waste that enter the water. Damage to fish habitat is one of the biggest reasons for declines in fish populations.

6.1.4 Fisheries and Oceans devotes most of its attention to the fisheries entirely under its jurisdiction—the fisheries on the east and west coasts. During the 1990s, the federal government increased this emphasis with the passage of the *Oceans Act*.

6.1.5 A number of events have influenced the level of federal involvement in freshwater fisheries. In the mid-1990s, the federal government made significant cuts in its programs and funding. At the same time, it began discussions with provinces to formally transfer to them its responsibilities for freshwater fisheries, primarily fish habitat management. However, the provinces had their own financial problems and were not willing to take on more federal responsibilities permanently without a corresponding increase in federal funds to carry them out. These developments, along with public opposition, led the federal government to abandon the proposed transfer.

The federal role and mandate

6.1.6 The Constitution gives Parliament legislative authority over Canada's seacoast and inland fisheries. Conserving and protecting fish for their sustainable use is the federal government's objective under the *Fisheries Act*, which applies to all fisheries—whether on public or private property. The

legislation allows the federal government to control fishing seasons, set the annual total allowable harvest, and limit the size of fish that may be taken. It also has authority under the *Fisheries Act* to protect fish habitat.

6.1.7 Other federal legislation affects the basin's fisheries and has added to the government's responsibilities in the basin. The *Canada Shipping Act* allows Transport Canada to make regulations that will protect the basin from invasive aquatic species carried by foreign ships. The *Canadian Environmental Assessment Act* requires Fisheries and Oceans to assess the environmental effects of proposed development projects before giving an authorization to alter fish habitat. The Department's role will continue to expand as the proposed species-at-risk legislation calls on it to develop and carry out recovery plans for aquatic species at risk.

6.1.8 Provinces share in the management of inland (freshwater) fisheries. Provinces license who may fish and how many fish they may take from lakes and rivers within their borders. They also carry out some of the federal government's responsibilities on its behalf, including controlling fishing seasons and limiting the number and size of fish that can be caught. The provinces propose regulations under the federal *Fisheries Act* that are reviewed and approved by the federal government.

6.1.9 The fisheries resource is also shared internationally. Faced with the destructive threat of the predatory sea lamprey, Canada and the United States signed the Convention on Great Lakes Fisheries in 1954, creating the Great Lakes Fishery Commission. The Commission brings together fisheries agencies from both countries to manage a sustainable fishery in the Great Lakes. Fisheries and Oceans delivers the Sea Lamprey Control Program in Canada as an agent of the Commission.

What we audited

6.1.10 We examined four different aspects of the federal government's responsibilities for fisheries in the basin. We looked at what the federal government is doing to prevent and control invasive aquatic species (Subsection 6.2). We asked whether the federal government is doing enough to protect, restore, and enhance fish habitat (Subsection 6.3).

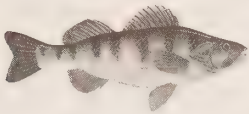
6.1.11 We looked at whether Fisheries and Oceans gets and uses the scientific information it needs in making its decisions (Subsection 6.4). Finally, we looked at the bigger picture—whether the federal government is fulfilling its responsibilities to conserve and protect the fish of the basin for their sustainable use by present and future generations (Subsection 6.5).

What we found

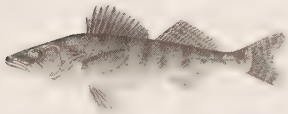
6.1.12 Overall. Fisheries and Oceans is the lead federal department for aquatic ecosystems. Cuts in departmental funding and the federal decision to retain its freshwater fish habitat management responsibilities have had a pervasive effect on the Department's ability to carry out its mandate in the Great Lakes and St. Lawrence River basin.

6.1.13 Defining the federal role. While Fisheries and Oceans has the overall responsibility for protecting and conserving the fisheries resource, it relies on related programs carried out by provinces and other federal agencies. But it

Some of the freshwater species in the basin



Yellow perch



Walleye



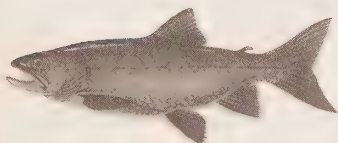
Rainbow smelt



Bass



Whitefish



Lake trout



Pacific salmon

Source: Fisheries and Oceans

does not look regularly at the effects of those programs on the aquatic ecosystem. Furthermore, it has not clearly defined its role in freshwater fisheries or clearly stated what it expects to achieve in its activities to protect the aquatic ecosystem and thereby the fish of the basin. Fisheries and Oceans has not evaluated whether it is contributing in the most effective way to the activities of the Great Lakes Fishery Commission.

6.1.14 The Department's role in the basin continues to evolve, and funding needs to keep pace. Both current and proposed legislation require an increased federal presence in the basin's fisheries.

6.1.15 The Department has no formal vision of the aquatic ecosystem it wants to promote in the basin. It has no criteria for determining when it should intervene to protect fish. And it has not kept Parliament informed of its plans in the basin or the results of its programs to date. Work with the provinces is under way to develop a national freshwater fisheries strategy, which is needed to establish clear accountability relationships. It remains to be seen whether the government will make this strategy a priority and provide the funds needed to carry it out and produce lasting results.

6.1.16 Invasive aquatic species. Invasive species are a serious and growing threat to the ecosystem of the Great Lakes and St. Lawrence River basin—a threat the federal government is ill prepared to counter, despite its commitments. There is no federal policy, no recognized lead department, and no plan to co-ordinate federal action to counteract the environmental, economic, and social impacts of these species.

6.1.17 Once here, species can quickly spread throughout the basin. However, the Department's position is that very little can be done to control non-native species once they become established. Furthermore, the government is doing little to prevent the arrival of additional invasive species. Keeping non-native species from entering the basin can save millions of dollars in control costs beyond the cost of damage they would do to the ecosystem.

6.1.18 A major pathway for invasive species to enter the basin is the ballast water carried by commercial ships. But Canada relies on ships' compliance with U.S. regulations and has only voluntary guidelines for ballast water exchange, through the *Canada Shipping Act* administered by Transport Canada. The guidelines do not provide enough protection.

6.1.19 Sludge at the bottom of empty ballast tanks can contain not only invasive species but also diseases such as cholera. Foreign ships with no ballast water on board pose a more significant threat than ballast water exchange, as neither the U.S. regulations nor the Canadian guidelines apply to them. Overall, the voluntary guidelines together with the ballast water regulations are only 3 to 17 percent effective.

6.1.20 The Sea Lamprey Control Program of the Great Lakes Fishery Commission has proved to be effective. Through this program, Fisheries and Oceans has helped the Commission control sea lamprey populations for more than 40 years. However, since the government cutbacks of the mid-1990s, Canadian funding for the program has been unstable.

6.1.21 Protecting fish habitat. One of the biggest reasons for declines in fish populations is damage to their habitat—the places where they spawn, feed, grow, and live. Individuals, municipalities, and companies have built retaining walls, docks, and dams; filled in wetlands; and polluted the water. It is difficult to put a figure on lost fish habitat; there is currently little information on the amount and quality of habitat across the basin.

6.1.22 The federal government's 1986 Policy for the Management of Fish Habitat addresses the government's obligations under the *Fisheries Act*—the protection and enhancement of fish habitat by Fisheries and Oceans and the Act's provisions for pollution prevention, administered by Environment Canada. Fifteen years have passed since the policy was adopted and it has not yet been applied fully. The Department does not know whether it is progressing toward its ultimate objective of a net gain in fish habitat.

6.1.23 Fisheries and Oceans has struggled to strengthen its habitat management program in Ontario since 1997, when the Province withdrew from administering fish habitat management activities on the federal government's behalf. Staff of Fisheries and Oceans have tried to keep up with the increased workload, but the delays have brought complaints from those seeking advice, guidance, or authorizations.

6.1.24 As part of re-establishing its program in Ontario, the Department recently developed agreements with 37 conservation authorities to help deliver the habitat program. But it is too early to measure their results. We are especially concerned about protection of fish habitat in areas that are not covered by conservation authorities.

6.1.25 Fisheries and Oceans has no fisheries officers in Quebec and no formal agreement with the Province to monitor habitat protection or enforce the *Fisheries Act* in fresh water. The Province has its own program to protect fish habitat, but unlike the federal program, it does not apply to private land. Fisheries and Oceans believes that freshwater fish habitat in Quebec is being lost.

6.1.26 The Department recognizes the problems in its habitat management program. In 1999 it received an annual increase of \$28 million to strengthen the program and promote consistency across the country. However, only some of the improvements will be made in Quebec.

6.1.27 Environment Canada administers the provisions of the *Fisheries Act* that prohibit pollution of water used by fish. However, Fisheries and Oceans is still ultimately responsible for those and all other provisions of the Act. It has not determined whether its actions, combined with those of Environment Canada, meet the requirements of the *Fisheries Act*. Specifically, it has not stated clearly how Environment Canada is to apply the Act's provisions for pollution prevention.

6.1.28 Scientific information for decision making. Scientific information is the basis of informed decisions. Fisheries and Oceans needs credible scientific information to do the following:

- set priorities and make management decisions;

- identify emerging threats, assess their significance, and develop and carry out strategies to counter them;
- ensure that where others deliver its programs, they meet the requirements of its mandate; and
- contribute to collaborative decision making in the basin.

6.1.29 The Department lacks scientific information that it needs to carry out its mandate effectively. It lacks information on fish stocks, quantity and quality of fish habitat, contaminants in fish, and the presence of invasive aquatic species. At the same time, new legislation such as the *Oceans Act* is placing more demands on the Department for science.

6.1.30 In the early 1990s, federal funding levels for the Department's scientific research in Ontario were unstable. Since then, the situation has deteriorated. Federal cuts coincided with provincial cutbacks, widening the existing gaps in knowledge and research and creating new ones. In Quebec, the Department has conducted almost no freshwater science.

6.1.31 The Department has identified the gaps in its science program and is working to determine the costs of filling them. It has also recognized that it does not have the staff it needs to conduct freshwater science, but it has no clear plan to resolve the problem. Projects that provide key information currently lack a long-term commitment by the federal government to their funding.

6.1.32 Fisheries and Oceans has not yet developed a strategy that would guide it in determining what science it needs to do itself, what it should do in partnership with others, and what it can obtain from other organizations.

What we recommend

6.1.33 Our audit found that Fisheries and Oceans needs to develop a vision of the aquatic ecosystem it wants to promote in the basin. It needs to define its role and responsibilities for conservation and protection of the fisheries, provide better protection against harmful invasive species, protect and manage fish habitat more effectively, and ensure that it has the scientific information it needs.

6.1.34 Fisheries and Oceans should take the following actions to ensure that the objectives of the *Fisheries Act* are achieved:

- Develop its own vision of the freshwater fisheries it wants to promote in the basin.
- Clarify its role in conserving and protecting freshwater fisheries in the basin.
- Establish clear commitments and adequate funding for its activities.
- Develop suitable accountability arrangements with its partners—the federal departments, provinces, and others it relies on to achieve the objectives of the *Fisheries Act*.
- Monitor the results of its activities and those of its partners and report them to Parliament.

6.1.35 Fisheries and Oceans should take the following actions to ensure that fish and fish habitat are protected as required by the *Fisheries Act* and the Policy for the Management of Fish Habitat:

- Measure progress toward its ultimate objective of a net gain in fish habitat. This should include, as a first step, monitoring the effectiveness of its advice and its decisions on individual projects.
- Ensure that it completes the renewal of its habitat management program and apply it consistently across the basin.
- Clearly define the actions it requires of Environment Canada to protect fish and fish habitat effectively and carry out the *Fisheries Act*'s provisions for pollution prevention.

6.1.36 Fisheries and Oceans should significantly expand its efforts in the following ways to control and prevent the introduction of invasive aquatic species and meet its stated commitments:

- Where feasible, develop programs to eradicate or prevent the further spread of invasive aquatic species already in the basin.
- Identify the threats posed by aquatic species that could invade the basin and assess the risks they pose to the aquatic ecosystem. Where there is significant risk, it should develop action plans to respond, with other parties, to an incursion.
- Conduct further research and propose alternative methods of preventing the release of invasive aquatic species in ballast water discharged by ships.
- Develop, with Transport Canada's participation, proposed changes to legislation to control or prevent the introduction of invasive aquatic species. (This should be done in consultation with the United States to ensure co-ordinated action.)

6.1.37 Fisheries and Oceans should do the following to ensure that it has the scientific information it needs to carry out its mandate in the basin:

- Clarify its responsibilities for research.
- Develop a strategy to guide its research activities and its acquisition of information from others.
- Ensure that it has adequate and stable funding for research commensurate with its needs for scientific information.

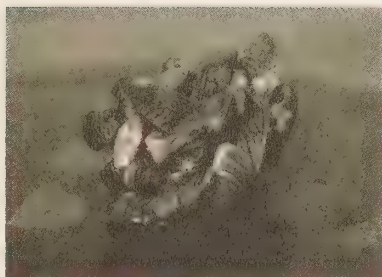
6.1.38 Fisheries and Oceans should establish stable funding to support the Great Lakes Fishery Commission. The Department should review its past performance and determine how it can participate most effectively in the Commission's activities.

(See Summary for departmental responses.)

6.2 Invasive Aquatic Species

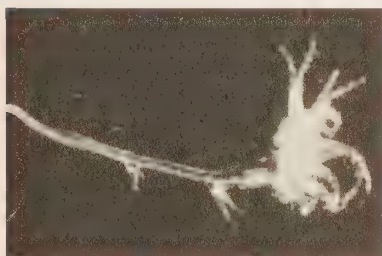
The issue

Invasive species threaten the basin



Zebra mussels cause extensive damage in the basin.

Source: U.S. Environmental Protection Agency



Spiny water flea, a small crustacean, competes with young fish for food.

Source: Great Lakes Fishery Commission

6.2.1 Exotic or alien species are those that are not natural to an ecosystem but have been introduced intentionally, or unintentionally. Some species, such as rainbow trout, are considered desirable as they have become important to the recreational fishery. Others are undesirable and considered invasive—zebra mussels, for example. While invasive species are a problem for both terrestrial and aquatic ecosystems, our audit focussed on invasive aquatic species.

6.2.2 Invasive aquatic species are second only to habitat destruction as a leading factor in the extinction of native aquatic species. Without intervention, invasive aquatic species can have severe, adverse impacts on the natural ecosystem and those who depend on it. They are recognized as a significant, unresolved problem around the world, but the problem is not new. The sea lamprey and the zebra mussel are just two of nearly 160 species that have invaded the Great Lakes and St. Lawrence River basin since the 1800s, with devastating effects on fish and the ecosystem.

6.2.3 The dense human population of the Great Lakes and St. Lawrence River basin has severely disturbed fish habitat and ecological communities. These invasions make the basin particularly susceptible to the introduction of additional species. Invasive aquatic species can enter the basin in many ways—aquaculture, the aquarium trade, baitfish, and recreational boating, among others. But the biggest known threat is commercial ships that can carry invasive species from foreign ports and release them into the basin unintentionally.

The federal role

6.2.4 Invasive aquatic species are a direct threat to fish or to their food. Fisheries and Oceans is responsible for conserving and protecting fish in the basin, including the habitat in which they live and the food on which they depend. The Department also carries out research on invasive species and gives scientific advice to Transport Canada's ballast water program.

6.2.5 Today, Transport Canada is responsible for regulating and controlling the management of ballast water on commercial ships and preventing or reducing the release of foreign aquatic organisms or pathogens from commercial ships into Canadian waters. In recent years this responsibility has moved back and forth between Fisheries and Oceans and Transport Canada. The *Canada Shipping Act* provides legislative authority to the federal government.

6.2.6 Canada signed the United Nations Convention on Biological Diversity in 1992. In its subsequent biodiversity strategy it made a commitment to “prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.” Environment Canada takes the

federal lead in the Canadian Biodiversity Strategy. It also does research on the environmental impacts of invasive aquatic species in inland waters.

Our audit question

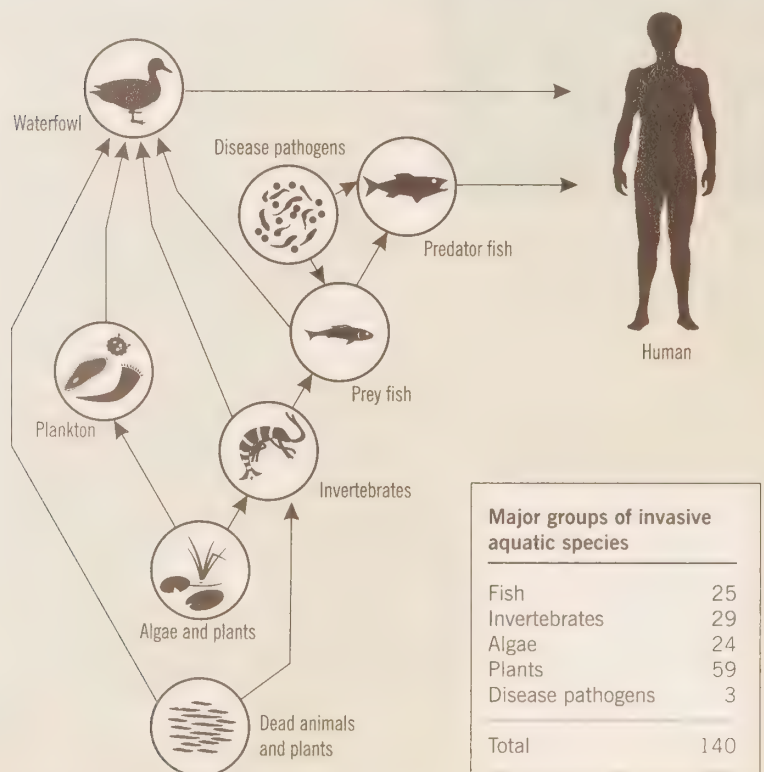
6.2.7 Is the federal government protecting the basin's ecosystem by preventing the entry of invasive aquatic species or monitoring and controlling their spread?

The story

Need for a co-ordinated approach

6.2.8 History has shown that once introduced into the basin, it is difficult or impossible to eradicate an invasive aquatic species or keep it from spreading. When an invasive species becomes established it can change the food web and further disrupt the ecosystem (see Exhibit 6.1). The methods used to control invasive species can themselves disrupt the ecosystem.

Exhibit 6.1 Invasive aquatic species affect different levels of the food web



Source: Adapted from The State of Canada's Environment, Government of Canada, Ottawa, 1991.
Reproduced with the permission of the Minister of Public Works and Government Services, 2001.

6.2.9 Coupled with serious losses to the basin's recreational and commercial fisheries is the estimated \$500 million spent each year on efforts to control invasive species in the Great Lakes. Correcting the damage they cause has its own high price—close to \$44 million in the past 10 years, just to keep the water intake pipes of power-generating facilities free of zebra mussels. During the same period, Fisheries and Oceans spent about \$52 million to control the sea lamprey population in the Great Lakes.

6.2.10 On paper, the Canadian Biodiversity Strategy contains a strong commitment to prevent and control invasive species. However, this commitment has not been translated into results. While Fisheries and Oceans is the lead federal department for aquatic ecosystems, it has not developed a plan to meet Canada's commitment.

6.2.11 Co-operation is essential. Invasive species are a basin-wide threat that requires the concerted efforts of the federal government, Ontario, Quebec, the U.S., and other partners—among them, resource management agencies, the research community, non-government organizations, industry, and the general public. Some are working on their own to combat invasive species, but to be effective, these separate efforts need to be co-ordinated under a lead agency.

The federal government is working to control sea lamprey

6.2.12 The Sea Lamprey Control Program of the Great Lakes Fishery Commission has proved effective. By participating in this program, Fisheries and Oceans has helped control sea lamprey populations in the basin for more than 40 years (Exhibit 6.2). Canada and the U.S. share in the program's funding, based on a formula that reflects the historic value of whitefish and lake trout caught and the estimated total area of the Lakes in each jurisdiction. The U.S. contributes 69 percent of the costs and Canada 31 percent.



Sea lamprey on a lake trout.

Source: Great Lakes Fishery Commission

6.2.13 Fisheries and Oceans delivers the Sea Lamprey Control Program from Sault Ste. Marie, Ontario, on behalf of the Commission. About 45 permanent and seasonal staff travel across the Great Lakes basin every summer. One team assesses the number of sea lamprey larvae in streams and rivers; a second team applies a chemical to kill them. Members of the team that apply the chemical are licensed by the provincial government to use pesticides. The Department has helped the Commission develop methods of treating streams that are more effective and thus require less of the chemical. They summarize their activities and results in annual reports.

6.2.14 In 1995, as part of significant government-wide cuts to programs and funding in the mid-1990s, Fisheries and Oceans eliminated its annual contribution to the Commission from its ongoing budget. Since then, the source of funds for Canada's entire contribution has been in question each year; it depends on whether the Deputy Minister of Fisheries and Oceans funds it from elsewhere in the budget. After six years, this funding uncertainty still has not been resolved. While there has been some movement toward resolution in recent months, there is no assurance of ongoing Canadian funding while the present arrangement continues.

6.2.15 Long-term, stable funding is needed to support the Commission's research, its Sea Lamprey Control Program, and its other committees. Stability will not be assured unless the federal government makes it a regular budget item.

Little action to control most other invasive species

6.2.16 No identified options for controlling the biggest threats. Once here, invasive species can quickly spread throughout the basin. However, Fisheries and Oceans does not have a policy or established procedures to respond to a new species or to its spread. The Department's position is that very little can be done to control invasive species once they become established in the Great Lakes. The federal government has therefore not attempted a comprehensive, well-managed response to invasive species already in the basin. They are having a dramatic impact on the basin's aquatic ecosystem, but there are no co-ordinated control programs except for the sea lamprey.

Exhibit 6.2 Controlling sea lamprey populations in the basin



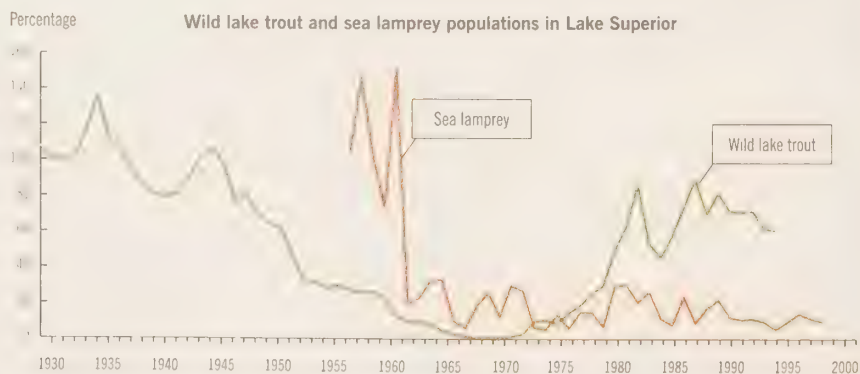
Damage inflicted on lake trout by the sucking disk of a sea lamprey.

Source: Great Lakes Fishery Commission

Sea lamprey are parasites that attach themselves to a fish with their sucking disk and sharp teeth, rasping through scales and skin to feed on body fluids, often killing the fish.

They are native to the Atlantic Ocean, not the Great Lakes, and are believed to have entered Lake Ontario in the 1830s. By the late 1940s, the sea lamprey population had exploded from Lake Erie to Lake Superior, causing severe damage to lake trout and other critical species of fish.

It was the destructive power of the sea lamprey that propelled the U.S. and Canada to co-operate in a binational response: the Great Lakes Fishery Commission. It has succeeded in controlling the sea lamprey population and protecting the commercial and recreational fisheries. The role of the federal government, as a member of the Great Lakes Fishery Commission and an agent for the sea lamprey control program, has been clear for the last 40 years.



Even less action to keep new invasive species out

6.2.17 Our audit found that the government does little to prevent the arrival of invasive species. Keeping them from entering the basin could save millions of dollars in control costs beyond the costs of damage they cause to the ecosystem.

6.2.18 The federal government has done research on the environmental effects of certain invasive species that have entered the basin but little on ways to keep more from entering. A first step toward prevention would be to identify potential sources (foreign ports in the case of ballast water, for instance) and species that could invade Canadian waters. Fisheries and Oceans has not determined which species are most likely to enter the basin and which of those would do the most harm—that is, which species are the biggest threats. While ballast water is generally recognized as the way most invasive species arrive in the basin, the Department has not assessed the relative significance of other entryways such as the aquaculture, aquarium, and baitfish industries.

Voluntary guidelines for ballast water exchange are ineffective

6.2.19 When ships carry less cargo, they carry ballast to steady themselves—usually water in special ballast tanks. Ships take on ballast water at ports all over the world. As they load cargo at ports on the St. Lawrence and the Great Lakes, these ships pump the water out of their ballast tanks and into the basin, along with any invasive species the water may contain.

6.2.20 About 100 ports in the basin on both sides of the Canada–U.S. border are engaged in active international and domestic shipping. More than 30 invasive species in the Great Lakes have hitchhiked there in ballast water—among them, the zebra mussel and the spiny water flea.

6.2.21 Since 1989 Canada has had voluntary guidelines, under the *Canada Shipping Act*, for ships to exchange their freshwater ballast with salt water as far from land as possible before entering the St. Lawrence Seaway. This exchange is intended to remove most freshwater organisms and kill the remaining organisms by subjecting them to salt water. Transport Canada receives copies of ballast water exchange reports from ships entering the basin, but it does not sample or test to verify that the information is correct. Rather, it relies on the U.S. regulation of ballast water exchange and on U.S. compliance rates. The Canadian Coast Guard (part of Transport Canada at the time) decided to rely on the U.S. regulations because they applied to all ships with ballast water that entered the Great Lakes. A Fisheries and Oceans study conducted 10 years ago found a high rate of compliance (95 percent) with the U.S. ballast water regulations. The same study, however, showed that the procedures used in exchanging ballast water were only 67 percent effective, because some species can survive exposure to salt water.

6.2.22 Given that all ships must comply with the U.S. regulations, Canada has been slow to establish its own—although the *Canada Shipping Act* gives it the authority to do so. Responsibility for ballast water exchange shifted from Transport Canada to Fisheries and Oceans in 1995 and back to Transport



Cargo ships can carry invasive species and release them in the basin.

Source: Bruce Litteljohn

Did you know?

- Number of invasive aquatic species introduced in the basin since the 1800s: **close to 160**
- Annual amount spent to control and repair damage from invasive species in the Great Lakes: **about \$500 million**
- Cumulative cost of damage in the Great Lakes (Canada and U.S.) by zebra mussels: **over \$3 billion**
- Annual cost of the Sea Lamprey Control Program: **\$21 million**
amount Canada contributes: **\$6 million**
- Number of ports in the basin (Canada and U.S.) that could be the release point for the next invasive species: **over 100**
- Percentage of ships that comply with the U.S. ballast water regulations, according to a 1991 Canadian study: **95**
- Percentage of ships to which these regulations apply: **5 to 25**

Canada in 2000. The shift in responsibility underlines the lack of commitment to action. Although Fisheries and Oceans is the lead federal department for the aquatic ecosystem, it has not taken ownership of this issue.

6.2.23 At present, the U.S. Coast Guard does not check ships that enter the basin through the St. Lawrence River for compliance with U.S. regulations until they reach Massena, New York. So ships that take on cargo in Quebec City, for example, can discharge their ballast water there without being monitored for compliance.

6.2.24 Surprisingly, foreign ships with no ballast water on board pose a bigger threat than ballast water exchange, and they are not subject to regulations. These are ships that have pumped out their ballast tanks to minimum levels as they loaded cargo. However, most ballast tanks have a few hundred tonnes of unpumpable slop and sediment at the bottom; they are never completely empty. The sludge can contain not only invasive species but also diseases such as cholera. These ships may unload and reload cargo at different ports. As they do, they take on and release ballast water and could release invasive species and diseases into the waters of the basin.

6.2.25 Each year, foreign ships with no ballast water account for 75 to 95 percent of ships entering the basin. Neither the U.S. regulations nor the Canadian guidelines apply to them. In other words, the voluntary guidelines together with the ballast water regulations are only 3 to 17 percent effective. This is a significant gap in the protection of the basin.

6.2.26 In its most recent sustainable development strategy, Transport Canada made a commitment to Parliament to have regulations and standards for ballast water management in place by 2002. It remains to be seen whether they will apply only to ballast water exchange or will address other issues such as ships with no ballast water. Transport Canada may have the regulatory responsibility, but Fisheries and Oceans retains responsibility for conducting scientific research on ballast water to get the information needed for program activities, regulation, and policy development.

6.2.27 Further research needed for ballast water management. Exchanging ballast water on the open sea has certain benefits but is not an ideal solution: a mid-ocean exchange can be an unsafe manoeuvre. Some alternatives have been suggested, but Fisheries and Oceans has not evaluated them thoroughly. One possibility would be to have ships exchange their ballast water at a shore facility before they enter the basin; another could be to treat the ballast water before it is released into the basin. Treatment options include fitting the ship's water pipes with a filter; using ultra-violet radiation; and on ships with no ballast water, treating ballast sediment with chemicals. However, these alternatives have their own limitations and the shipping industry sees them as impractical or prohibitively expensive. It is argued, for example, that with current technology it would take too long to filter the ballast water; and building a shore-based treatment facility would be costly. Using chemicals could also have environmental costs.

6.2.28 In our view, the problem of invasive species in ballast water warrants concerted action now. A single ship can introduce a species, and every introduction is potentially irreversible. Given its responsibilities, Fisheries and Oceans needs to weigh the costs of damage by invasive species against the costs of alternative means of control, and take appropriate action.

6.2.29 Being ready for the next invasive species. A forward-looking, organized approach to prevent and control invasive aquatic species could include the following:

- identifying species that are a threat;
- assessing the risk of their entry;
- developing and assessing treatment technologies;
- monitoring the environment to detect new species or occurrences;
- understanding ecosystem impacts; and
- developing control strategies and plans.

Conclusion

6.2.30 Invasive aquatic species are a serious and growing threat to the ecosystem of the Great Lakes and St. Lawrence River basin—a threat the federal government is ill prepared to counter, despite its commitments. There is no federal policy, no recognized lead department, and no plan to co-ordinate federal action to counteract the environmental, economic, and social impacts of these species.

Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	Conserve and protect fish and fish habitat in the basin.	The federal government has been slow to protect fish and fish habitat from the threat of invasive species. It has developed an organized, co-ordinated response only to sea lamprey.
	Prevent the introduction of, control, or eradicate alien species that threaten ecosystems, habitats or species. (Biodiversity Strategy)	There is no national policy that would allow departments to address this issue in a co-ordinated way.
		The federal government's efforts are not focussed on prevention.
		Its efforts to control or eradicate invasive species that are already in the basin are ad hoc and lack co-ordination.
	Improve and perpetuate fishery resources and specifically to control sea lamprey. (Great Lakes Fishery Commission)	Fisheries and Oceans, under the direction of the Great Lakes Fishery Commission, has controlled sea lamprey populations in the Canadian portion of the Great Lakes.

Our audit objectives and main findings

Assessing the government's performance

❶ Has the government applied good management practices?	Strengths	Weaknesses
	<p>The federal government, with the Great Lakes Fishery Commission, has defined the sea lamprey problem (economic impact, effects on fisheries) and taken steps to address it.</p> <p>The program for the control of sea lamprey populations in the Great Lakes is largely effective.</p>	<p>The federal government does not have a forward-looking, organized approach, which could include identifying species that are a threat, assessing their risk of entry, preventing their entry, and controlling their spread.</p>
❷ Has the government established good governance structures?	<p>The Great Lakes Fishery Commission has been an effective structure through which Canada and the U.S. have co-operated to address the problem of sea lamprey in the Great Lakes.</p>	<p>The government does not have a policy, a lead department, or a plan to counteract the impacts of invasive species. It is difficult to piece together the extent of the problem and the action being taken to resolve it.</p> <p>The government has passed the responsibility for ballast water management from Transport Canada to Fisheries and Oceans and back to Transport Canada. It is too soon to tell what impact the most recent transfer will have.</p> <p>The federal government is not actively managing the issue of invasive species. Therefore, we cannot say that it is protecting the public interest.</p>

6.3 Protecting Fish Habitat

The issue

6.3.1 Fish habitat needs protection. Damage to fish habitat can threaten fish populations more than overfishing. Urbanization and land development in the Great Lakes and St. Lawrence River basin have caused the loss of shorelines and wetlands—important areas where fish spawn, feed, grow, and live.



Fish habitat refers to places that fish need to spawn, feed, grow, and live. Water temperature, oxygen levels, food sources, and shelter are important factors in habitat quality.

Source: *Cold Comfort*, Ontario Ministry of Natural Resources
(Posters 1-800-667-1940)

6.3.2 Many activities can result in the destruction of fish habitat. Removing vegetation along the edges of streams and lakes results in increased water temperature and a loss of habitat, where fish find food. It allows running water to erode the soil and transport sediments into streams, where they can smother gravel used by spawning fish. Effluents discharged into water can damage water quality and thus fish habitat, potentially harming fish. Examples include effluents from pulp and paper companies and mining companies, sewage and other municipal waste, and pesticides and nutrients in runoff. Dredging in harbours, channels, and marinas can destroy habitat by removing it and depositing silt. Individual property owners—by building a retaining wall, installing a dock, or damming a creek—can also destroy fish habitat.

6.3.3 It is difficult to put a figure on the loss of fish habitat—there is currently little information on the quantity and quality of habitat across the basin. But we can protect it, with proper care, and thereby protect wetlands and shorelines, improve water quality, and protect certain species at risk.

The federal role

Clear responsibility to protect fish habitat

6.3.4 Fisheries and Oceans is responsible for protecting fish habitat. It has a powerful tool in the *Fisheries Act*, which controls actions that would damage habitat and pollute the water used by fish. While Environment Canada administers the *Fisheries Act* provisions that prohibit pollution of water used by fish, Fisheries and Oceans is responsible for those and all other provisions of the Act. In addition, the *Canadian Environmental Assessment Act* stipulates that before Fisheries and Oceans can issue an authorization under the

Fisheries Act for any activity that would alter, disrupt, or destroy fish habitat, it must complete an environmental assessment.

6.3.5 The federal government's Policy for the Management of Fish Habitat is the cornerstone of its efforts to protect fish habitat. The policy's objective is to achieve a net gain in the natural productive capacity of fish habitat through the goals of conservation, restoration, and development. The policy applies to all projects and activities—large and small, on public or private land, in or near the water—that could alter, disrupt, or destroy fish habitat. If a loss of habitat is unavoidable, it must be compensated for by restoring, enhancing, or constructing habitat elsewhere.

6.3.6 Other jurisdictions. In Canada, fish habitat protection is a federal and provincial partnership. Ontario and Quebec have their own environmental, wildlife and land-use-planning legislation that gives them a role in protecting water and fish habitat in the Great Lakes and St. Lawrence River basin. However, some provincial laws and regulations apply only to public land. From 1989 to 1997, Ontario carried out most habitat management activities on the federal government's behalf. There has been no equivalent arrangement with Quebec. Currently, most conservation authorities in Ontario have agreements with Fisheries and Oceans to advise the public on measures to protect fish habitat.

Our audit questions

6.3.7 How well does the federal government apply its habitat management policy to protect fish habitat in the Great Lakes and St. Lawrence River basin? Does the Minister of Fisheries and Oceans have assurance that Environment Canada prevents pollution of fish habitat in accordance with the objectives of the *Fisheries Act*?

The story

Federal policy is clear but implementation is incomplete

6.3.8 The 1986 Policy for the Management of Fish Habitat presents a clear objective: a net gain in fish habitat. The policy covers both fish habitat protection by Fisheries and Oceans and pollution prevention by Environment Canada. However, 15 years after the policy's adoption, it has never been fully implemented. Of the policy's eight separate but related strategies, Fisheries and Oceans has emphasized one: protection and compliance. And it has not applied that strategy consistently in the two provinces of the basin. The 1986 policy recognizes that protection and compliance alone are not enough to achieve a net gain in fish habitat. The seven remaining strategies in the policy must be carried out as well to fulfil the three policy goals (Exhibit 6.3).

Steps to protect existing fish habitat

6.3.9 Fisheries and Oceans' fish habitat management program consists primarily of reviewing development proposals to identify potential threats to fish habitat and outlining measures to avoid or mitigate their impacts (Exhibit 6.4). Anyone who causes unauthorized damage to fish habitat can be charged under the *Fisheries Act*. Any person who proposes a project that will likely affect habitat should consult Fisheries and Oceans to see whether an authorization is needed. Available options to protect fish habitat are, in order of preference, to relocate the project, redesign it, find ways to reduce damage, and/or provide for replacement habitat (normally called compensation).

6.3.10 Before Fisheries and Oceans can issue an authorization, its officers must complete the environmental assessment required by the *Canadian Environmental Assessment Act*. The assessment increases the time it takes to process an authorization, but it also provides protection by examining additional environmental factors.

Unsuccessful attempts to delegate to the provinces

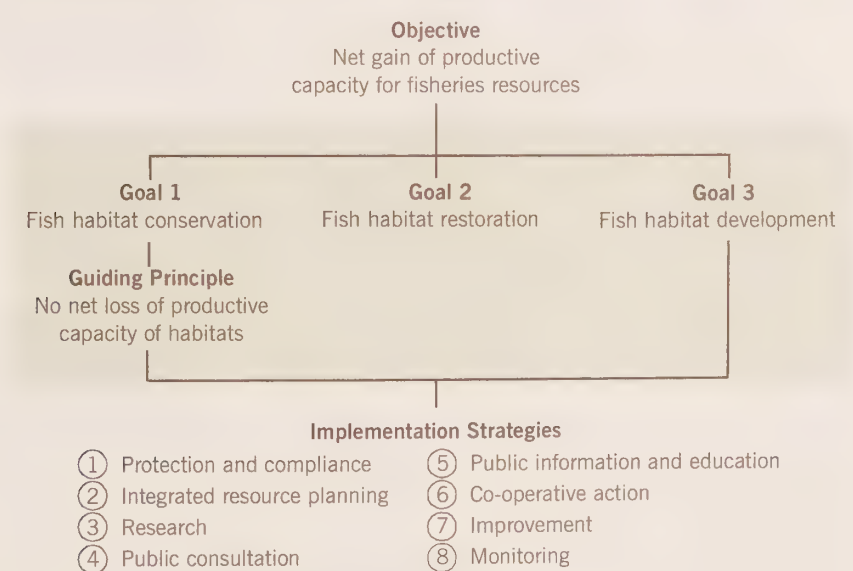
Did you know?

- Amount of fish habitat lost or gained in the basin: **unknown**
- Number of years that the Policy for the Management of Fish Habitat has been adopted but not fully implemented: **15**
- Number of agreements that Fisheries and Oceans has with conservation authorities in Ontario to help deliver the Fish Habitat Management Program: **37**
- Number of people in 1998–99 who received advice and authorizations from Fisheries and Oceans for projects that could affect fish habitat in Ontario: **1,542**
number in Quebec: **108**
- Number of additional staff Fisheries and Oceans planned to hire to renew its Fish Habitat Management Program in Ontario: **103**
number in Quebec: **12**

6.3.11 In its 1995 Budget, the federal government announced that it would formally delegate the management of freshwater fish habitat to the Prairie provinces, Ontario, and Quebec. It made this decision so it could increase its presence in managing Canada's oceans and, at the time, Ontario and Quebec were already managing their commercial and recreational freshwater fisheries by arrangement with the federal government. Furthermore, since 1989 Ontario had enforced most *Fisheries Act* provisions for fish habitat protection under an agreement with Fisheries and Oceans.

6.3.12 Skeptical about the protection the provinces would provide, environmental groups strongly opposed the transfer of responsibilities. Moreover, the proposed delegation meant that without federal involvement, many projects that would otherwise warrant an environmental assessment under the *Canadian Environmental Assessment Act* would not be assessed. Recognizing their concerns, the Department proposed to only partially delegate freshwater habitat management to the provinces—which would still require changes to the federal legislation. The provinces would not agree. They wanted the existing arrangement formalized and additional funding to manage fish habitat on the federal government's behalf. Ontario withdrew

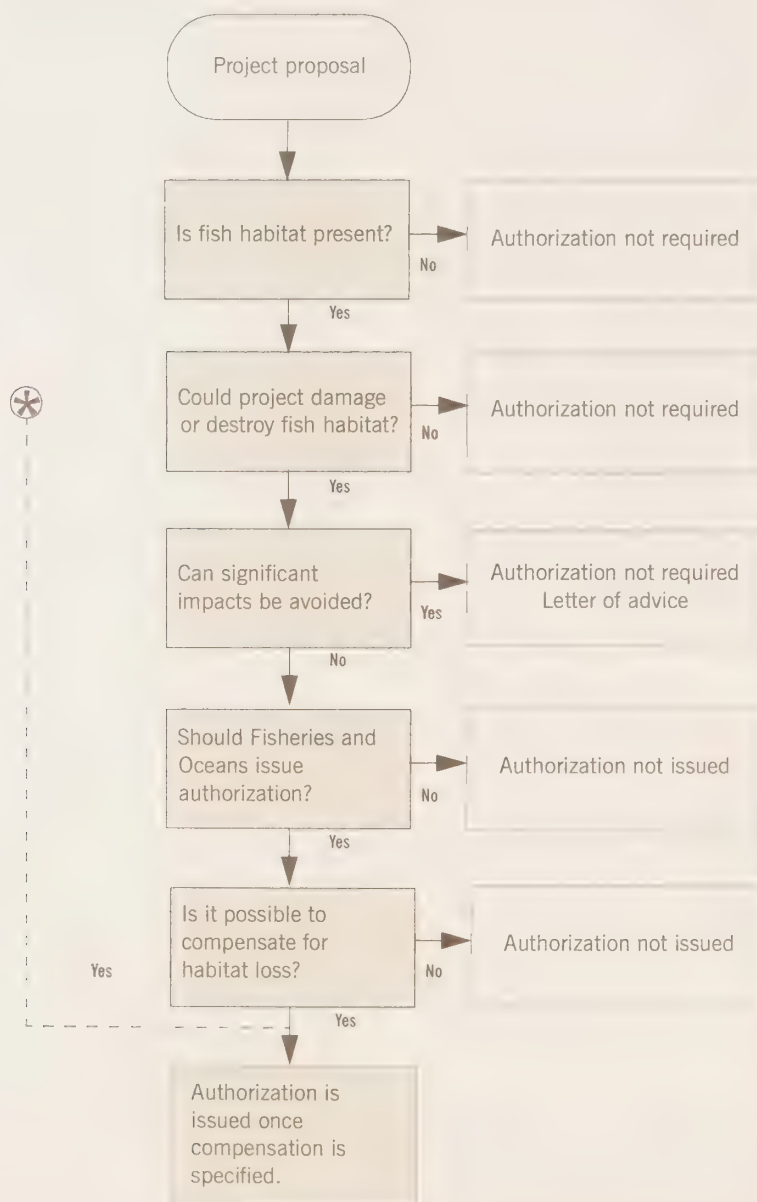
Exhibit 6.3 Policy framework for fish habitat management



Source: Adapted from Policy for the Management of Fish Habitat, Fisheries and Oceans, 1986

from its agreement to manage fish habitat in September 1997. Quebec argued that its own legislation and programs already protected fish habitat. As no agreement was reached, Fisheries and Oceans reassumed its full responsibilities for national management of freshwater fish habitat.

Exhibit 6.4 Decision framework for determining and authorizing harmful alteration, disruption, or destruction of fish habitat



⊗ If a project is likely to result in damage or destruction to fish habitat, an environmental assessment should be conducted concurrently and must be completed before an authorization is issued.

Source: Adapted from Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat, Fisheries and Oceans, 1998

Struggling to strengthen its program in Ontario

6.3.13 The Department had no back-up plan ready when Ontario decided to withdraw from its administration of fish habitat management. It told us that it had made some arrangements for effective transition. The Department temporarily reassigned fewer than five fisheries enforcement officers from other regions to Ontario to complement the seven habitat biologists already working there. It also relied on informal local arrangements between provincial and federal officials. We noted a decline in the number of charges laid during this period—none during 1997–98 and only one in 1998–99, compared with six in 1996–97.

6.3.14 Following the province's withdrawal from its agreement, the federal workload in the habitat management program increased dramatically—from reviewing a total of 250 development proposals per year in September 1997 to reviewing more than 3,000 a year later. Staff struggled to keep up with the workload, but the delays brought complaints from those seeking guidance, advice, and authorizations. Finally, in 1999, the federal government ended its attempts to delegate and instead expanded its program. At the time of our audit, the Department was completing the hiring of 78 fisheries biologists and opening new district offices across Ontario. We believe that Fisheries and Oceans has taken too long since 1997 to establish a replacement program in Ontario and has been less able to protect fish habitat in the meantime.

6.3.15 The Department is still struggling to deploy up to 25 more fisheries enforcement officers in Ontario. It takes two years to train fisheries officers so they can enforce fisheries legislation for all species across Canada. The Department provides comprehensive training so that it can assign any officer to any location. However, it finds it difficult to attract and retain officers in Ontario because the habitat work relies on only a small portion of their overall training.

6.3.16 As part of re-establishing its program, the Department recently developed three levels of agreement with 37 conservation authorities in Ontario to help deliver the habitat program (Exhibit 6.5). Conservation authorities are local environmental agencies that conserve, restore, develop, and manage natural resources in areas defined by watersheds. The Department's agreements with them build on their former responsibilities with the Province and make good use of their local knowledge. Conceptually these agreements have promise, but it is too early to measure their results.

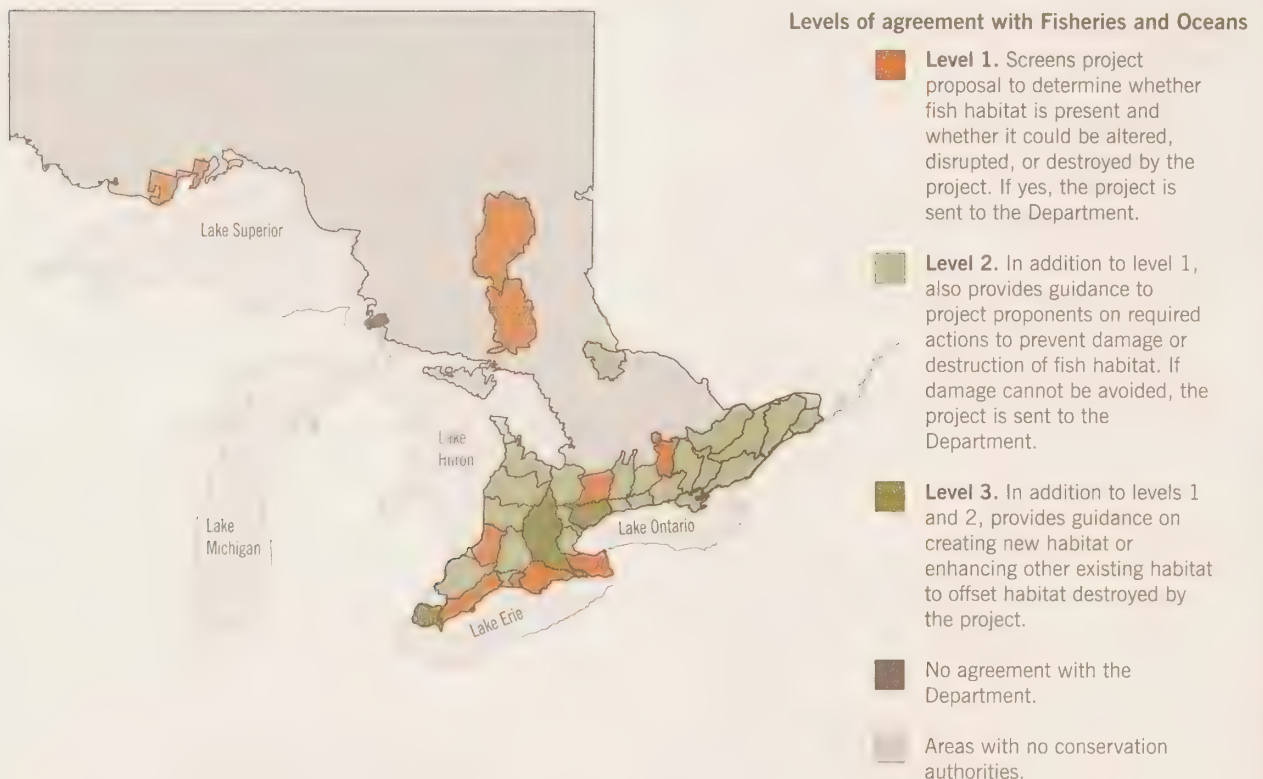
6.3.17 We are especially concerned about the protection of fish habitat in areas not covered by conservation authorities—most of the territory north of Lake Superior and Lake Huron. There is no federal–provincial accord on fish habitat management that applies to this region, apart from recent guidelines developed by the Department, the Province, conservation authorities, and Parks Canada Agency. Parks Canada informed us that four of its field units have signed a memorandum of agreement with Fisheries and Oceans on the fish habitat referral process. Fisheries and Oceans relies on these groups to help protect habitat as part of carrying out their own responsibilities—for example, the province's approval of forestry management plans.

6.3.18 This arrangement may avoid duplication, but Fisheries and Oceans does not monitor whether fish habitat in this region is protected in accordance with its policy. We found that it had not assessed the implications of the 1998 Report of the Provincial Auditor of Ontario, which questioned the Province's capacity for fish and wildlife enforcement. We question the federal government's current capacity to protect fish habitat in areas not covered by conservation authorities.

Freshwater fish habitat may not be protected adequately in Quebec

6.3.19 Unlike Ontario, Quebec has never had a formal habitat agreement with Fisheries and Oceans. The Province does not recognize the federal jurisdiction over freshwater fisheries and related sections of the *Fisheries Act* and the *Canadian Environmental Assessment Act*. At a working level, though,

Exhibit 6.5 Conservation authorities in Ontario share in the management of fish habitat

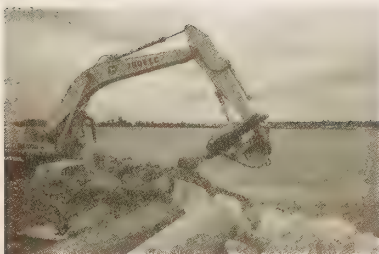


Fisheries and Oceans assigns three levels of responsibility to conservation authorities, based on their level of experience and capacity. Conservation authorities review project proposals on behalf of the Department, free of charge. Fisheries and Oceans provides training, as well as hardware and software, to fulfil the requirement for annual reporting to Parliament. The Department retains responsibilities for *Fisheries Act* authorizations and conducting environmental assessments under the *Canadian Environmental Assessment Act*.

Source: Adapted from A Protocol Detailing the Fish Habitat Referral Process in Ontario, August 2000. Fisheries and Oceans, Parks Canada, Conservation Ontario, Ontario Ministry of Natural Resources.

federal and provincial officials do share the objective of protecting fish habitat. Federal staff rely on detailed provincial knowledge in carrying out their fish habitat work.

6.3.20 Fisheries and Oceans has no fisheries officers in Quebec to monitor habitat protection or enforce the *Fisheries Act* in fresh water. While the Department believes that habitat is being lost, it has no agreement with Quebec for the Province to enforce the habitat provisions of the Act and has no established process to know whether charges have been laid. Though Quebec has its own program to protect fish habitat, unlike the federal program it does not apply at present to private land. However, provincial wildlife officers are empowered to apply the *Fisheries Act* to protect fish habitat. Finally, although the Province analyzes and approves projects, there is no formal mechanism to refer them to the federal government. Habitat may be lost and no new habitat created or enhanced to compensate.



Proper care must be taken to protect fish habitat when working near water.

Source: Fisheries and Oceans

6.3.21 Until 1997, the Department did not issue any authorizations in Quebec for projects that would affect fish habitat. As a result, any environmental assessments under the *Canadian Environmental Assessment Act* that might have been triggered as part of the federal authorization process were never done. The Department's involvement in protecting freshwater fish habitat was restricted to large projects and federal projects. On those projects, it advised on measures to minimize changes to fish habitat, but lost habitat was not replaced.

6.3.22 Since 1997–98, Fisheries and Oceans has marginally increased its efforts in Quebec to administer *Fisheries Act* provisions for fish habitat protection. It issued its first authorizations, along with compensation plans to replace lost habitat. However, the Department does not have the staff to do this systematically and comprehensively. The recent increase in federal activity happened without formal consultation or co-ordination with the Province. It was poorly received by the Province, by project proponents, and by other federal departments. The lack of clarity about the roles of the Department and the Province and the lack of public information have left applicants confused about when they should involve the federal government.

6.3.23 Before issuing an authorization, program staff often need scientific advice. However, the Department has no freshwater science expertise for habitat decisions in Quebec, even though 80 percent of the applications it receives for analysis involve freshwater habitat. We were told that given budget constraints, all scientific efforts are directed to the marine environment.

Is habitat being gained or lost?

6.3.24 Fisheries and Oceans does not know whether there has been a net gain or a net loss in the basin's fish habitat. It does not gather enough information to assess the productive capacity of fish habitat. The Department has not measured changes to the amount of habitat over the years. It has not done enough monitoring to conclude whether applicants have complied with the advice or authorizations it has given. Nor does it monitor whether its

decisions have resulted in a gain or loss of the productive capacity of fish habitat. However, the Department recognizes that it needs better information on the state of habitat, and it is planning to initiate measurement techniques.

Problems with Habitat Management Program are recognized

6.3.25 In 1999, the Department commissioned a study of the national Fish Habitat Management Program. The study examined how well the program had analyzed and responded to projects referred to the Department. In response to the study's criticisms and recommendations, the Department initiated a renewal of the program to promote consistency across the country and provide for more early intervention and monitoring. In 1999, it received an annual increase of \$28 million to strengthen its national program for the management of freshwater fish habitat, emphasizing the Prairie provinces and Ontario.

6.3.26 The changes recommended by the study were not new. Some had begun under the former Habitat Action Plan but were never completed. Indeed, in 1993 the Department had launched a four-year, \$29.4 million plan to develop co-operative arrangements with inland provinces and national tools to manage and protect fish habitat. But the Habitat Action Plan did not meet its objectives. Furthermore, the 1999 study found employees skeptical about whether a new initiative would succeed.

6.3.27 At present, as the Department implements the initiative, it has considerable work remaining. For example, it has added staff in Ontario but has problems attracting senior biologists. In Quebec, the renewal initiative includes activities to encourage acceptance of the federal program, such as public information campaigns. Although the renewal program is national in scope, it is not designed to provide the same level of monitoring and enforcement in Quebec as in Ontario.

Problems in applying pollution prevention provisions of the *Fisheries Act*

6.3.28 Beyond protecting fish habitat, the *Fisheries Act* includes provisions to prevent pollution of waters used by fish. Although Environment Canada administers that section of the Act on behalf of the Minister of Fisheries and Oceans, the Minister remains accountable for the entire Act. The two departments signed a memorandum of understanding (MOU) in 1985 to clarify their responsibilities for the administration of that section.

6.3.29 We noted several deficiencies in the MOU. For example, Fisheries and Oceans is concerned about Environment Canada's interpretation and consequent lack of enforcement of the provision that prohibits the deposit of any "deleterious substance" in waters used by fish. Fisheries and Oceans found that in some cases, Environment Canada has interpreted this to mean a substance that kills fish. But to Fisheries and Oceans, a substance is deleterious even if it could cause indirect harm such as a build-up of contaminated sediments over time.

6.3.30 The Commissioner's 1999 Report cited a separate problem in the application of pollution prevention provisions. In the chapter, Streamlining



Effluents must be properly treated to avoid polluting fish habitat.

Source: Bruce Littelljohn

Environmental Protection Through Federal–Provincial Agreements, we noted that Environment Canada had not ensured that the pulp and paper regulations of the *Fisheries Act* were properly enforced in Quebec.

6.3.31 Although since 1992 the two federal departments have repeatedly noted the need to revise the MOU, it has not been revised. Fisheries and Oceans has the legal responsibility for the *Fisheries Act* provisions, but it has not stated precisely the responsibilities of each department. Nor has it clearly defined how Environment Canada should apply the term “deleterious substance” to achieve the objectives of the *Fisheries Act*.

A need for a compliance and enforcement policy

6.3.32 The federal government needs a policy that establishes principles for the fair and consistent enforcement of the *Fisheries Act*’s provisions for habitat protection and pollution prevention. In 1998, Fisheries and Oceans and Environment Canada made a commitment to the Standing Committee on the Environment and Sustainable Development to have such a policy in place by the end of 1998. Efforts to develop the policy have been under way for more than 10 years and today, two and a half years beyond their target, the departments are finalizing a draft for public consultation. In our view, this delay is unacceptable.

Reports to Parliament have been delayed

6.3.33 Reporting is an essential feature of good accountability and a requirement of the *Fisheries Act*. While we found some improvements in the latest report to Parliament by Fisheries and Oceans, reports are still not on time. Nor do they provide a good summary of the results of the Act’s provisions for habitat protection and pollution prevention.

6.3.34 The reports for 1995, 1996, and 1997 on activities of both Fisheries and Oceans and Environment Canada were not produced until the Federal Court of Canada ordered the Minister of Fisheries and Oceans to comply with the requirements of the *Fisheries Act*. In 1998, Fisheries and Oceans published the 1996–97 report (with data on convictions in 1994–95 and 1995–96). The 1998–99 report was published in February 2001, one year later than the departmental target date. The Department has begun to report its activities under the eight strategies of the Policy for the Management of Fish Habitat. It has yet to report on the effectiveness of its efforts and on whether fish habitat has been gained or lost, but providing that information is its long-term reporting objective.

Conclusion

6.3.35 In the 15 years since Fisheries and Oceans introduced its Policy for the Management of Fish Habitat, it has not applied the policy effectively or completely. The Department is aware of problems in the part of the policy it has applied. It does not know whether the advice it gives and the decisions it makes result in a loss or gain of fish habitat. Nor has it provided on time its required reports to Parliament on the status of fish habitat.

6.3.36 Mechanisms that provide for accountability are needed to ensure that the provinces, conservation authorities, and the public comply with the *Fisheries Act* and the Policy for the Management of Fish Habitat. Agreements with provincial conservation authorities are too recent to conclude whether they are effective.

6.3.37 In both Ontario and Quebec, Fisheries and Oceans has left serious gaps in applying and enforcing the habitat protection provisions of the *Fisheries Act*. Its attempted withdrawal from habitat management in Ontario seriously eroded its capacity, which it is still rebuilding. While renewal of the Fish Habitat Management Program is essential to apply the habitat policy consistently across the basin, only portions of the program will be carried out in Quebec.

6.3.38 Fisheries and Oceans has not determined whether its actions, combined with those of Environment Canada, meet the objectives of the *Fisheries Act*. Specifically, it has not clearly stated how Environment Canada should apply the pollution prevention provisions of the Act.

Our audit objectives and main findings

Holding the federal government to account

① Has the government fulfilled its commitments?

Commitments

Protect fish habitat according to the *Fisheries Act* and the 1986 Policy for the Management of Fish Habitat.

Results

Fisheries and Oceans has not fully implemented its 1986 policy. It has concentrated on only one of the eight strategies—protection and compliance—and done it inconsistently.

The Department has begun to increase its presence in the basin but still lacks knowledge of how well fish habitat is protected.

The Department has not consistently assessed whether its guidance, advice, and authorizations have been followed by project proponents and whether this has resulted in a gain or loss of fish habitat.

The Department has not assessed the overall status of fish habitat and whether it has achieved a net gain in the productive capacity of fisheries resources.

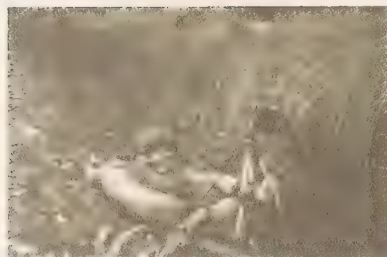
Our audit objectives and main findings

Assessing the government's performance

2 Has the government applied good management practices?	Strengths	Weaknesses
	Fisheries and Oceans has initiated a renewal of its Fish Habitat Management Program with priorities to correct gaps in the implementation of its habitat policy.	The Department has not measured whether habitat is gained or lost, and it cannot measure its progress.
3 Has the government established good governance structures?		
	Fisheries and Oceans has established arrangements with provinces, conservation authorities, and Environment Canada designed to protect fish habitat.	<p>Fisheries and Oceans does not know if fish habitat is being protected under its various arrangements.</p> <p>The Department has not clearly stated to Environment Canada its requirements for pollution prevention.</p> <p>The Department has not reported to Parliament on time.</p>

6.4 Scientific Support for Fisheries Decisions

The issue



Fisheries and Oceans relies on scientific research, such as this fish habitat study, when it evaluates development proposals or rehabilitates damaged areas.

Source: Fisheries and Oceans

6.4.1 Scientific information is the foundation of all the federal government's fisheries work in the Great Lakes and St. Lawrence River basin. As a science-based department, Fisheries and Oceans needs credible scientific information to do the following:

- set priorities and make management decisions;
- identify emerging threats, assess their significance, and develop and carry out strategies to counter them;
- ensure that where others deliver its programs they meet the requirements of its mandate; and
- contribute to collaborative decision making in the basin.

The absence of good science allows serious problems to develop undetected (such as declines in fish populations). The Department then has to confront them with crisis management, an expensive and risky option.

The federal role

6.4.2 Fisheries and Oceans is the lead federal department for aquatic ecosystems. Under the *Fisheries Act*, it is responsible for the conservation and protection of fish and fish habitat in the basin. Scientific information is the basis for this role, allowing the Department to determine whether it and its partners are meeting the requirements of its mandate. Federal departments fund, produce, and share scientific information about fish and fish habitat. While Fisheries and Oceans has the overall lead, Environment Canada conducts some of the science needed for its pollution prevention work under the *Fisheries Act*. Environment Canada and Health Canada lead the Toxic Substances Research Initiative to improve their knowledge of toxic substances in the ecosystem and the damage they cause. Fisheries and Oceans also participates in the initiative.

Our audit questions

6.4.3 Does Fisheries and Oceans determine what scientific information it needs for decisions and the best way to obtain it? Does it get the information and use it in making decisions?

The story

Significant gaps in science information

6.4.4 In its vision statement, Fisheries and Oceans makes a commitment to scientific excellence—a commitment that filters down through the Department's strategies, policies, and programs. We found that it sets priorities for its research activities, applies established criteria to select new projects, and reviews the progress of these projects annually. However, there are gaps in its science coverage. The Department lacks scientific information it needs to understand the state of the basin's ecosystem, including fish stocks, amount and quality of fish habitat, contaminants in fish, and the presence of invasive aquatic species. At the same time, new legislation such as the *Oceans Act* is placing more demands on the Department for science.

Cutbacks in the 1990s widened gaps in freshwater science

6.4.5 In the early 1990s, federal funding levels for scientific research in Ontario were unstable. Since then, the situation has deteriorated. The government-wide cuts of the mid-1990s in programs and funding reduced the Department's scientific presence in the Great Lakes. It scaled back its science activities under the Great Lakes Water Quality Agreement, for example, and eliminated open water research. It had two large research vessels in the Great Lakes to conduct open water research. One has left the basin and the other is used by Environment Canada, leaving Fisheries and Oceans without such a vessel on the lakes. Federal cuts coincided with provincial cutbacks, widening existing gaps in knowledge and research and creating new ones. In Quebec, the Department has conducted almost no freshwater science.



The *Louis M. Lauzier* is no longer available for research in the basin.

Source: Fisheries and Oceans

6.4.6 Fisheries and Oceans is still recovering. The Department has identified the gaps in its science program and is working to determine the costs of filling them. Based on departmental estimates, those costs will range from \$3.5 million to \$13.3 million annually in its Central and Arctic Region (which includes the Great Lakes). In the Laurentian Region (which includes a large part of the St. Lawrence River), the estimated costs are \$1.5 million to \$1.9 million annually to fill gaps in the freshwater habitat and fish contamination sections of its science program. The wide range in these estimates indicates that planning is still in the early stages.

6.4.7 The costs for the Central and Arctic Region include an estimated \$2.76 million for science to support the expanded Fish Habitat Management Program. The Department failed to include scientific support in 1999 when it calculated the funding it needed to expand the program. It has not yet sought these funds. To fund some of the needed science, it has cut back on other important research.

6.4.8 The Department has recognized that it lacks the staff to conduct freshwater science, but it has no clear plan to resolve the problem. This is a particular concern in Quebec; the Department estimates that it needs another 14 people to conduct research on freshwater fish habitat and fish contamination. However, at the end of our audit it still had no staff with the expertise to do this research—expertise that can take 10 years to develop.

6.4.9 There are significant problems looming as the Department's work force ages. While the Central and Arctic Region is hiring five new scientists in the Great Lakes area, 54 percent of the environmental science researchers are expected to retire from the public service in the next four years. Funding and organizational restrictions have prevented managers from hiring new researchers beforehand to allow for the transfer of knowledge. The Region is taking some action, however, encouraging its researchers to work as adjunct professors in universities. They can thus help to train graduate students to become freshwater scientists. The Great Lakes Fishery Commission has just entered a formal agreement with the University of Guelph to develop a centre of expertise in fish habitat and sea lamprey control research. The Commission and Fisheries and Oceans both provide funding to support the research.

While this initiative should help provide a longer-term solution, it does not resolve the problems the Region faces in the next four years.

Need for a long-term, stable commitment to science

6.4.10 Its understanding of the ecosystem is the basis for Fisheries and Oceans' applied research and the advice it provides for decisions to support environmental assessments, for example. The Department has identified gaps in both of these areas. We are especially concerned that the Department has found it difficult to re-establish ecosystem monitoring, which is needed to track trends as the basin changes.

6.4.11 There is also a significant gap in basic scientific information on the amount and quality of fish habitat. Fisheries and Oceans has only isolated pockets of data on the basin. Knowing the location and state of habitat that is critical to healthy fish populations is essential to set the program's direction and measure progress toward goals and objectives.

6.4.12 In some cases the Department is not conducting research or gathering basic scientific information for ongoing support to its programs—for example, baseline data on nutrient levels and productivity in the open water. (See the case study, The importance of maintaining up-to-date information on the environmental impacts of pesticide use for sea lamprey control.)

6.4.13 The Department's research programs require a sustained investment to maintain scientific expertise, specialized equipment, and program funding. Over the past 20 years, for example, its Great Lakes Contaminants Surveillance Program has helped to track trends and identify emerging problems of toxic chemicals (Exhibit 6.6). The information it provides is the basis for further studies by federal departments, such as Health Canada. However, the program is without long-term funding.

A shared basin needs shared information

6.4.14 Scientific information for environmental protection is a commodity for common use. Research by one organization can be useful to others. Fisheries and Oceans and the provincial ministries need access to each other's research results to help determine their own course of action. Fisheries and Oceans routinely conducts scientific research in partnership with other organizations—including the Great Lakes Fishery Commission, the provinces, Environment Canada, and universities. Sharing research enhances the Department's understanding of the ecosystem, stretches its limited resources, and develops environmental and fisheries science expertise in the basin.

6.4.15 However, Fisheries and Oceans has not yet developed a strategy that would guide it in determining what research it needs to do itself, what it should do in partnership with others, and what it can obtain from other organizations. It has committed to developing a science partnering strategy and guidelines by 2002.

Did you know?

- Percentage of Great Lakes science funding in Fisheries and Oceans cut since 1993: **30**
- Estimated annual costs to fill identified gaps in scientific information on the Great Lakes: **\$3.5 million to \$13.3 million**
estimated annual costs for St. Lawrence River: **\$1.5 million to \$1.9 million**
- Number of Fisheries and Oceans research staff in Quebec with expertise in fresh water: **0**
number needed to do the required work: **14**
- Of environmental scientists doing research in Central and Arctic Region (including Great Lakes), percentage expected to retire in the next four years: **54**

Fisheries and Oceans' role for science

6.4.16 In determining the research it will undertake, Fisheries and Oceans has not considered what information is needed for the management of the basin as a whole and how it can contribute to that information most effectively. It is presently developing an agreement to clarify its own responsibilities and those of Ontario for science and sharing of information under the Canada–Ontario Fisheries Agreement. The two governments recently signed a sub-agreement on information sharing and are developing another on science co-ordination. However, the Department has not clarified respective roles and responsibilities for science with Quebec, nor is it actively working to do so.

The importance of maintaining up-to-date information on the environmental impacts of pesticide use for sea lamprey control

Controlling sea lamprey in the Great Lakes with 3-trifluoromethyl-4-nitrophenol (TFM) has the clear economic benefit of providing increased numbers of healthy fish. But the environmental cost needs to be re-evaluated regularly.

Since 1958, TFM has been used in the tributaries of the Great Lakes on a rotational basis. The Sea Lamprey Control Program is the responsibility of the Great Lakes Fishery Commission, but it is delivered by Fisheries and Oceans in Canada and the Fish and Wildlife Service in the United States.



Applying the TFM pesticide.

Applying the chemical

Fisheries and Oceans, acting as an agent for the Commission, selects and ranks streams for treatment from a basin-wide list. The decision to apply TFM is based on a balance between the potential number of lamprey and the funds available for control. The Department develops a control plan for each stream, which is then treated by staff who are licensed to use pesticides. When applied in the right concentration, TFM is lethal to lamprey larvae but not to most other species. Some invertebrates are particularly sensitive to TFM and their populations could be reduced in the area of treatment, but research indicates that these populations recover.

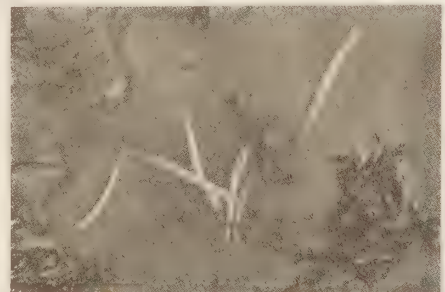
Effects on fish

TFM became a concern in 1992, when Fisheries and Oceans staff identified previously undetected metabolic effects in fish at sites that had been treated. The Commission responded quickly, helping to fund research by Fisheries and Oceans. The research found that the TFM batches contained trace amounts of dioxin. Though it was not the most toxic form, fish are known to be sensitive to dioxins, especially in their developmental stages. The source of the dioxin was traced to a by-product of the chemical's production, and concentrations varied widely from one batch to another. The research led to a change in the manufacturing process, and the Commission now requires manufacturers to produce TFM without dioxins.

The need for ongoing research

The Commission has undertaken considerable research in recent years to re-register sea lamprey control chemicals (including TFM) with the U.S. Environmental Protection Agency. The Agency concluded the chemicals do not cause adverse effects on the environment or human health and are safe for re-registration. Health Canada is beginning a similar re-evaluation process.

While effects of TFM are thought to disappear in three to five days, further research is needed to determine whether the brief exposure every three to four years is enough to cause endocrine disruption or reproductive impairment in resident fish species. The Commission shares this concern and is waiting for further guidance from the Canadian and U.S. governments (such as study protocols to investigate pesticides for endocrine disruption) before proceeding with the research.



Dead sea lamprey.
Source: Great Lakes Fishery Commission

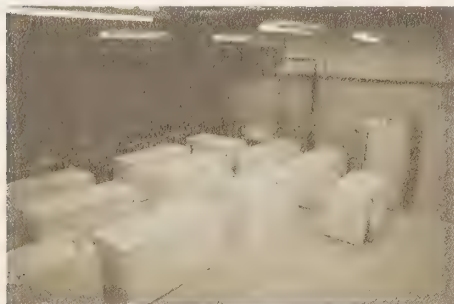
6.4.17 Fisheries and Oceans is not acting effectively in its role as the lead federal department for aquatic ecosystems. It does not gather and assess information systematically to determine whether fish and fish habitat in the basin are being conserved and protected—a responsibility that it shares with other departments and governments. It has not clarified with Environment Canada their respective responsibilities for research to support the *Fisheries Act* provisions for pollution prevention.

6.4.18 **The right information is not always available to front-line staff.** Fisheries and Oceans does not always put its scientific research to effective use. A departmental study found that habitat management staff lack information and decision-making models to apply the results of scientific research. Fisheries and Oceans staff need science to support their program decisions, especially where their decisions could be questioned in court. The Department is currently working to improve the way it translates and communicates scientific information to front-line staff.

Conclusion

6.4.19 Fisheries and Oceans has focussed on its own policies, programs, and international agreements to identify the gaps in its science information and set its own priorities. It has begun to improve its research on freshwater habitat, focussing on the Great Lakes. However, its research activity in the St. Lawrence River basin is still insufficient. Throughout the Great Lakes and St. Lawrence River basin, there are still significant gaps in the information available to the Department to understand the state of the basin's ecosystem and guide its future course of action.

Exhibit 6.6 The Great Lakes Contaminants Surveillance Program



This Fisheries and Oceans program maintains an archive of over 15,000 samples of tissues from fish and invertebrates.



The program uses the vessel *Shark* to collect samples.



It uses specialized equipment, including a high resolution mass spectrometer, to analyze the samples.



The work requires expertise in analytical chemistry, biology, and data management, provided by professionals with years of experience.

Source: Fisheries and Oceans

6.4.20 While the Department has begun efforts to fill the more significant gaps in its research, it has done so without first clarifying its core science needs and responsibilities. The Department cannot set a course on its own for its future science activities. It recognizes that it must collaborate and plan with its partners to ensure that together they obtain the scientific information they need to manage the basin's ecosystem. Progress is slow, and is evident only in Ontario.

6.4.21 To fulfil its stated mandate to conserve and protect fish and to support its expanded Fish Habitat Management Program, the Department needs to know whether fish populations are being managed for sustainability and whether fish habitat is being protected or destroyed; in many cases, it does not have that information. Fisheries and Oceans does not have a structured approach to determine what scientific information will be most important in the future—from applied research to monitoring—and how it can best obtain it. To incorporate scientific information better in decision making, the Department needs to regularly evaluate the effectiveness of its scientific research in the Great Lakes.



Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	Develop and use scientific knowledge. Share information and results with others through the Great Lakes Fishery Commission, International Joint Commission, and Canada–Ontario Fisheries Agreement.	Fisheries and Oceans lacks significant information to understand the state of the ecosystem and guide its research programs in the basin. It is working to fill some gaps, but a lack of clarity about its role in freshwater science is hindering progress. It is now in the process of determining its roles.
	Conduct scientific research to provide the information and technology necessary for the conservation, restoration and development of fish habitats.	The Department does ongoing habitat science work in the basin but not enough to support the 1986 Policy for the Management of Fish Habitat. While it recently stepped up its research activities in Ontario, the Department has not begun to resolve the limitations of its freshwater habitat science in Quebec.
	Build core capacity for science to support ecosystem management in 2000–01.	The Department is conducting a national science gap analysis to identify science needs and rebuild its core science capacity.

Our audit objectives and main findings

Assessing the government's performance

 Has the government applied good management practices?	Strengths	Weaknesses
	<p>Fisheries and Oceans is developing plans and priorities for freshwater environmental science to guide some of its current activities.</p> <p>Fisheries and Oceans is developing better decision-making models and improving the flow of information from habitat scientists to habitat managers. The Department has signed a formal data sharing agreement with Ontario.</p>	<p>Fisheries and Oceans does not yet have plans and priorities for its responsibilities in fresh water, especially where they overlap with those of other partners.</p> <p>It does not have a formal agreement with Quebec to share information.</p>
 Has the government established good governance structures?	<p>Fisheries and Oceans is developing an agreement on science co-operation with Ontario and a national freshwater fisheries strategy with all the provinces (except Quebec).</p>	<p>Fisheries and Oceans does not have up-to-date agreements that clarify who is responsible for which research area when jurisdictions overlap.</p>

6.5 Defining the Federal Role in the Basin's Freshwater Fisheries

The issue

6.5.1 Residents and visitors in the Great Lakes and St. Lawrence River basin want to be able to catch fish and eat the fish they catch. To flourish, fish need clean water, suitable habitat, and a plentiful, uncontaminated source of food. Everything that affects them—the complete aquatic ecosystem—must be managed to sustain them.

6.5.2 Are there fish in the basin to catch? Most of the desirable species declined during the last century. The main causes include destruction of habitat; overfishing; pollution from sewage, farming, toxic chemicals, and other sources; acid rain; weather variations; and the impact of invasive aquatic species such as the parasitic sea lamprey.

6.5.3 Can people eat the fish? The International Joint Commission and the Province of Ontario have warned that for children and women of child-bearing age, eating certain Great Lakes sport fish can lead to serious health problems or birth anomalies. Quebec has also issued consumption advisories.

6.5.4 Over the past 100 years, Ontario and Quebec have gradually assumed the day-to-day management of freshwater fisheries in the basin. However, the federal government retains the overall legislative responsibility for the conservation of the fisheries resource throughout Canada. Recent events have underlined the confusion over the federal government's role in the basin's fisheries and whether it is achieving its objectives.

The federal role

6.5.5 Under Canada's Constitution, Parliament has exclusive lawmaking power over the seacoast fisheries and the conservation and protection of inland fisheries. In the basin, as in other freshwater ecosystems, the main objective of the *Fisheries Act* is to conserve and protect fish for sustainable use.

6.5.6 The provinces have legislative jurisdiction over property within their borders, except property owned by the federal government. This means they can determine whom they will license to catch fish in their lakes and rivers, what they will charge for a licence, and how many fish each licence holder can catch. Their programs include raising and stocking desirable fish species (primarily for recreational fishing) and conducting scientific research. Over time, provincial programs expanded to include most fishing activities, for some of which the federal government has legislative responsibility.

6.5.7 Canada and the United States signed the Convention on Great Lakes Fisheries in 1954, creating the Great Lakes Fishery Commission. The Commission's main fisheries management activities include conducting and co-ordinating research and reporting the results. It also makes recommendations to sustain and enhance the productivity of any Great Lakes fish stock of common concern to its members. State, provincial, and certain tribal fisheries agencies are part of the Commission's lake committees and make decisions on fisheries management, including stocking and harvest



A commercial fishing boat on the Great Lakes.

Source: Bruce Litteljohn

levels. Federal government representatives are not members of lake committees but have observer status. They participate on the Commission's boards and committees that apply to all lakes (Exhibit 6.7). Decisions of the Commission and its committees do not have the force of law. There is no penalty for non-compliance.

Our audit question

6.5.8 Is the federal government fulfilling its responsibilities to protect and conserve fish in the basin?

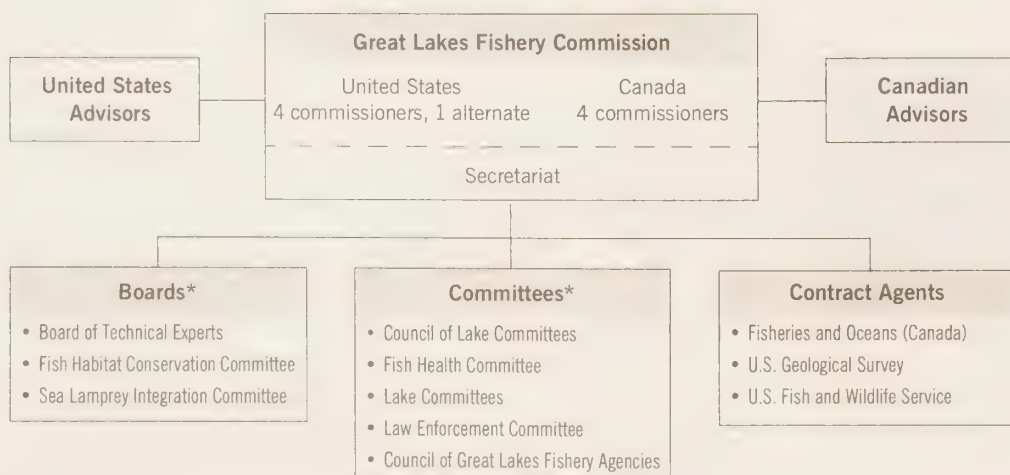
The story

Federal role is unclear

6.5.9 Decisions made by the provinces in managing the freshwater fisheries have a direct impact on the conservation and protection of fish—federal objectives under the *Fisheries Act*. It is not at all clear where the line is drawn between federal and provincial responsibilities.

6.5.10 In 1867 the federal government managed all aspects of fisheries in Canada. However, court decisions in the late 1800s recognized that provinces had jurisdiction over aspects of freshwater fisheries that principally involved property rights. As a result of these decisions, the federal government entrusted the management of freshwater fisheries to Quebec, Ontario, and other inland provinces, while retaining overall responsibility for the conservation of the resource. Where legislation conflicts, the federal legislation prevails.

Exhibit 6.7 Structure of the Great Lakes Fishery Commission



*Appointed by the Commission

Source: Great Lakes Fishery Commission

6.5.11 On paper, the federal conservation role includes controlling fishing seasons, establishing total allowable catches, and restricting the size of fish taken. However, Ontario and Quebec have been administering these responsibilities for some time, using the federal *Fisheries Act*. The provinces propose regulations that are reviewed and approved by the federal government.

6.5.12 Good management practices dictate that while the provinces deliver these activities, they have an accountability relationship with the federal government whose responsibility it is to see that the requirements of its mandate are met. This accountability relationship was understood and applied by the federal government in 1899, when it transferred fisheries management responsibilities to Ontario. Federal inspectors ensured that the Province's fisheries management activities achieved federal objectives. Sometime during the last century, however, this concept of accountability was lost.

The situation in recent years

6.5.13 In 1991 we audited the Central and Arctic Region of Fisheries and Oceans, which includes the Great Lakes portion of the basin. We found confusion over the respective roles of the federal and provincial governments in managing freshwater habitat and fisheries.

6.5.14 In addition to its traditional role of managing its freshwater fisheries, from 1989 to 1997 Ontario administered most of the federal habitat protection activities under an agreement with Fisheries and Oceans. Then the Department sought to formally transfer its responsibilities for the freshwater fishery (primarily fish habitat management) to the Province, but they could not reach an agreement. The federal government then resumed administering its fish habitat protection activities.

6.5.15 Negotiations for a renewed Canada–Ontario Fisheries Agreement are proceeding slowly. The current agreement remains in force until a replacement takes effect. Both governments have tried to minimize enforcement duplication and co-ordinate their collection of scientific information by negotiating sub-agreements. However, the current agreement does not clearly define how the division of roles and responsibilities helps to meet the federal objective, conservation and protection for sustainable use.

6.5.16 In Quebec there has been almost no change in recent years. The federal government has no formal agreement with the Province for managing freshwater fisheries. Until recently, its presence in Quebec's freshwater fisheries was very limited; now it has a small program for fish habitat protection. The Province does not recognize federal jurisdiction over fisheries in fresh water, and the federal government has not pursued reopening discussions toward a formal agreement.

Federal information on basin fisheries is limited

6.5.17 Provinces make the management decisions for their freshwater fisheries in the basin using information gathered in their scientific research.

Did you know?

- Value of the basin's commercial freshwater fisheries in Ontario: **\$40 million**
value in Quebec: **\$6 million**
- Number of fish caught for recreation in Ontario waters of the Great Lakes: **33 million**
number kept: **14 million**
- Number of fish caught for recreation in Quebec province-wide: **60 million**
number kept: **43 million**
- Number of fish species in the basin: **179**
- Number of fish species no longer in the basin: **13**
- Level of Fisheries and Oceans' understanding of the basin's aquatic ecosystem and where it is heading: **very limited**

Although provincial programs were cut significantly in the mid-1990s—in some cases, as much as 40 percent—Fisheries and Oceans does not look regularly at the results of provincial and other programs in the basin or assess how those programs affect the aquatic ecosystem. However, the Department has access to information generated by the lake committees and by the State of the Lakes Ecosystem Conferences.

6.5.18 In certain locations, such as inland Quebec and lakes Superior and Huron, the Department's information on fish and fish habitat is so limited that its officials feel they cannot comment on ideas put forward by their provincial counterparts and other stakeholders. Furthermore, even if the provinces have information, there are no formal arrangements for transferring knowledge between the federal government and Quebec, and a data-sharing agreement has only recently been signed with Ontario.

Federal role in fresh water is increasing

6.5.19 The role of Fisheries and Oceans has evolved over the past decade. The Department is now expected to apply and enforce federal legislation in the basin in addition to the *Fisheries Act*. The public also expects more accountability and transparency from the government, and its expectations are likely to increase. Some of the changes that require an increased federal presence include the following:

- Resources are required to ensure under the *Canadian Environmental Assessment Act* that environmental effects of projects with a federal component or federal authorization are minimized.
- More than 100 new Fisheries and Oceans staff are beginning to deliver the expanded Fish Habitat Management Program in the basin.
- Invasive aquatic species are a significant threat to the ecosystem and require more research and monitoring. Measures to control the spread of certain species may also be needed.
- The proposed species at risk legislation, if enacted as currently drafted, will impose additional requirements on the Department. They include taking inventory of native aquatic species and identifying those at risk, preparing and implementing recovery strategies, and monitoring and reporting the results. Initial analysis by the Department indicates that the legislation would create a significant amount of new work.
- Recent court decisions have expanded Aboriginal participation in fisheries on the east and west coasts. These decisions could affect the federal role in the basin's fisheries, but it is not clear yet in what ways.

6.5.20 Each of these changes draws the Department further into freshwater fisheries. It is time for it to consider their cumulative impact on the federal role in the basin's fisheries and to plan for the future.

The Department is not managing for the future

6.5.21 Fisheries and Oceans does not have a clear vision of the aquatic ecosystem it wants to see eventually in the basin. While lake trout have recovered to a limited extent in some lakes, most species that were plentiful

in the past have not recovered to historic levels. Many fish still contain too many contaminants for people to eat them safely. The Department's programs—from protecting and enhancing fish habitat to controlling sea lamprey—have a positive effect on the basin. But is it putting its efforts in the right places? How does it know it is moving in the right direction? There is no vision for the basin that guides the Department in setting priorities, planning programs, and carrying them out.

6.5.22 Others do have a vision for the basin. The Great Lakes Fishery Commission developed its Strategic Vision of the Great Lakes Fishery Commission for the Decade of the 1990s, and A Joint Strategic Plan for the Management of the Great Lakes Fisheries. The Plan is a strategy for co-operation and consensus among federal, provincial, state, and tribal fisheries agencies. Together, the Vision and the Plan contain a number of broad goals for the fishery and ways for these fisheries agencies to work together toward common objectives. Lake committees have established fish population targets for each Great Lake. Ontario has a strategic plan for Ontario Fisheries, which also sets broad goals and objectives. Quebec produces a plan for each of its fisheries. All of these visions and plans provide a good reference point, but Fisheries and Oceans has no vision of its own to guide its sharing in the management of the basin and to set its own priorities.

The need for a freshwater fisheries strategy

6.5.23 At the root of the confusion over the federal role in the basin's fisheries is the fact that accountability relationships have not been stated clearly to reflect each party's role and responsibilities. Without clarity of roles, threats to the aquatic ecosystem such as climate change or invasive species could go undetected or unchecked. Provincial decisions on who may catch how many fish have a direct impact on the conservation of the resource. However, Canada and the provinces have not agreed on terms such as “conservation” and on how to apply them. The absence of a federal strategy makes it difficult to negotiate clear, comprehensive agreements between the federal and provincial governments.

6.5.24 In 1999, Fisheries and Oceans released a paper to encourage discussions with the provinces that would lead to a national strategy for freshwater fisheries. The Canadian Council of Fisheries and Aquaculture Ministers, which includes federal, provincial, and territorial ministers, has formed a task group to prepare a national strategy. (Quebec chose not to participate in the task group.) One of the group's objectives is to clarify federal, provincial, and territorial responsibilities for the management of freshwater fisheries. Another is to define the principles of freshwater fisheries management, including conservation. The current plan is to achieve a consensus among the ministers represented in the task group by September 2001.

6.5.25 Fisheries and Oceans has made clear its preference for delegation arrangements with provinces and territories, as outlined in its 1999 discussion paper. But its approach has two significant deficiencies. First, it does not

reflect the recent changes that are drawing it further into freshwater fisheries. Second, and more important, with no provision for accountability it repeats the flaw in previous delegation arrangements. Once again, though Fisheries and Oceans has the legislative responsibility to conserve freshwater fisheries for future generations, under the new arrangements it will have no means of determining whether it is doing so.

An example of the challenges ahead

6.5.26 Fisheries and Oceans faces challenges in ensuring that its future role makes the most effective contribution to the shared management of the basin while achieving its own objectives. One such challenge is to determine how it can best contribute to the Great Lakes Fishery Commission and its committees.

6.5.27 The Department currently participates as a full member of the Commission's committees that apply to all the Great Lakes. However, it participates only as an observer on the other committees. It has not examined whether it is contributing in the most effective way. Now, as it defines its future role, is an opportune time to consider and make appropriate changes.

6.5.28 Another challenge facing Fisheries and Oceans is to determine whether it should intervene in the management of a fishery to conserve and protect fish (see case study, Should Fisheries and Oceans intervene to protect the American eel in the basin?).

Should Fisheries and Oceans intervene to protect the American eel in the basin?

American eel populations in Lake Ontario have declined sharply in the last few years, from an estimated annual migration upstream of over 600,000 eel in the 1980s to fewer than 3,000 in 2000. American eel spawn in the Sargasso Sea of the Atlantic Ocean, and the immature elver migrates up the North American coast. Some travel up the St. Lawrence River to Lake Ontario, where they live for a number of years before returning to the Sargasso Sea to complete their life cycle. Many adult eels are killed by the turbines of a hydroelectric dam on the St. Lawrence as they return to the sea. Overfishing has been cited as a chief cause of their decline, but there are not enough scientific data to confirm this.

This eel is caught commercially at different stages of its life along the coasts of the U.S., the Atlantic provinces, Quebec, and the Canadian waters of the St. Lawrence River and Lake Ontario. Despite the dramatic decline in population, little action has been taken to safeguard the eel. Fisheries and Oceans has integrated fisheries management plans for this species in the Atlantic provinces and the Quebec coastal fishery (where the Department manages the fishery). But commercial fishers say that fishers in other jurisdictions harvest elvers or eels along the migratory path. No jurisdiction wants to lose its share to another, but the species could be suffering irreparable harm. The total quota set by Ontario in 2000 was 467,000 but only 64,000 eel were caught. Ontario and its commercial fishers agreed to reduce this year's quota 50 percent in Lake Ontario and in the Ontario portion of the St. Lawrence River, but it is not clear that this will ensure a sustainable population.

While the situation is difficult to resolve, Fisheries and Oceans has taken no action in the Great Lakes and has no plans to do so. This is in direct contradiction to its stated objective of conserving the fishery resource for its sustainable use. In developing a national strategy for freshwater fisheries, the Department needs to keep in mind the complex situations that can develop and ensure that the national strategy contains accountability measures and suitable criteria for determining when it should intervene.

Improving reporting to Parliament

6.5.29 Fisheries and Oceans does not report routinely to Parliament on its objectives for freshwater fisheries (including the basin) or the results it achieves. It does not collect data or report on the state of fisheries in the basin. Parliament is therefore unable to assess whether the Department is meeting its obligation to conserve and protect the fisheries. Without this information, Parliament cannot determine whether the resources it provides to the Department are appropriate.

6.5.30 The Department does not collect and report information gathered by other participants in the fisheries, and it is not gathering enough of its own to assess the health of the fisheries in the basin.

Conclusion

6.5.31 Fisheries and Oceans lacks sufficient information to know whether it is meeting its legislative objective of conserving and protecting fish in the basin for their sustainable use.

6.5.32 There are signs of progress in some areas. The Department is strengthening its role in the protection of fish habitat. Its presence in the basin is likely to increase in the coming years, if initiatives like the proposed species-at-risk legislation go forward.

6.5.33 Work is under way with the provinces to develop a national strategy for freshwater fisheries. But accountability relationships are still unclear, and so is the federal role. Further, the Department has no formal vision of the aquatic ecosystem it wants to promote in the basin and no criteria for deciding when it should intervene to protect fish. Nor has it kept Parliament informed of its plans and the results of its efforts.



Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	Conserve and protect fish for their sustainable use.	Fisheries and Oceans cannot be sure that its legislative mandate to conserve and protect fish in the basin is being met. It lacks sufficient information on the state of the basin.
	Co-operative management between Canada and the U.S. to achieve maximum sustainable use of common fisheries.	Fisheries and Oceans is in the process of implementing a freshwater habitat management program in the basin, but it does limited freshwater research and provides limited input to the Great Lakes Fishery Commission.

Our audit objectives and main findings

Assessing the government's performance

 Has the government applied good management practices?	Strengths	Weaknesses
	<p>Fisheries and Oceans helped create the Great Lakes Fishery Commission to foster consensus among the fisheries agencies in the basin. The Commission and agencies have developed a high-level strategic plan and vision to make consensus-based decisions for the Great Lakes fisheries.</p> <p>The federal government's representatives have input on committees that apply to all lakes.</p>	<p>Fisheries and Oceans lacks sufficient information for federal decision-making and does not always obtain it from other organizations.</p> <p>The Department does not yet have a federal freshwater fisheries strategy.</p> <p>It does not have a federal vision of the aquatic ecosystem it hopes to promote for the basin.</p> <p>It does not have criteria for determining when it would intervene to conserve or protect a species.</p>
 Has the government established good governance structures?		<p>Fisheries and Oceans does not have clear accountability relationships with provincial governments. The Canada–Ontario Fisheries Agreement of 1988 does not provide a clear accountability relationship. The Department does not have a formal agreement with Quebec.</p> <p>The Department has not clearly defined its roles and responsibilities.</p> <p>It does not report to Parliament on objectives, activities undertaken, and results achieved in fresh water or in the basin.</p>

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ECOSYSTEM INITIATIVES

7.1 Overview and Recommendations

7.1.1 Most of the environmental issues and threats discussed in this chapter are addressed through national or department-wide policies and programs of the federal government. Some of the policies and programs are brought together under the government's regional ecosystem initiatives. Great Lakes 2000 (now Great Lakes 2020) and St. Lawrence Vision 2000 are two programs among six current ecosystem initiatives of the federal government (Exhibit 7.1).

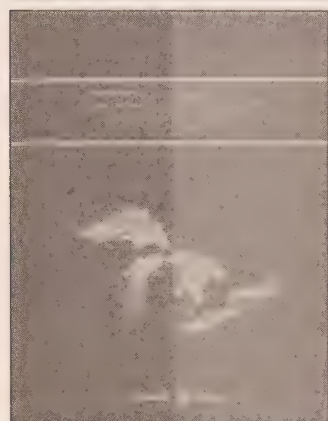
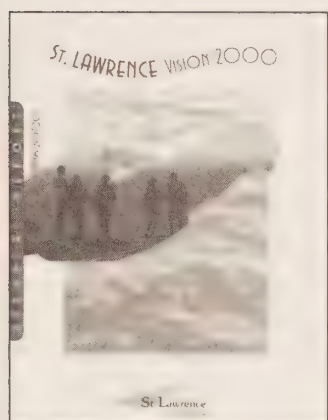
7.1.2 Other sections of this chapter have described the results that federal programs have achieved. In this section, we focus on aspects of the federal governance of the basin ecosystem programs. In our view, good governance includes effective accountability within and among federal departments and their partners, clear roles and responsibilities, transparency, and the measuring and reporting of results. We believe that good governance is crucial to achieving open and accountable government.

7.1.3 A look at the basin ecosystem programs requires the perspective of time. The co-ordination of federal and provincial environmental programs in the Great Lakes began in the early 1970s, and in the St. Lawrence River basin in 1988. Both programs have evolved since then. Different models and approaches to governance have been tried, tested, and adjusted as the environmental challenges have changed, the numbers of players grown, and public expectations for involvement and accountability increased. The government's approach to governance will need to continue evolving.

7.1.4 Environment Canada leads the ecosystem programs in the Great Lakes and St. Lawrence River basin through its Ontario and Quebec regional offices. It not only provides most of the federal funding for the programs but also attempts to co-ordinate the activities of the several other federal participants.

7.1.5 The programs share several major characteristics:

- Each has repackaged existing federal programs and funding and provided some new funding to manage several interrelated issues of the environment and sustainable development. These include water management, protection of species and spaces at risk, and reduction of the effects of farming activities, among others.
- Each program is selective in choosing the environmental issues it will address. Neither attempts to embrace all of the threats and issues in the basin or region.



The federal role and mandate

- Each features a program that funds local projects and cleanup activities (the Great Lakes 2000 Cleanup Fund and, in the St. Lawrence River basin, the Community Interaction program).
- Both carry out community-based programs and actions in specific planning areas—the Great Lakes areas of concern and the St. Lawrence zones d'intervention prioritaires (ZIPs).

Exhibit 7.1 The federal government's regional ecosystem initiatives



7.1.6 The challenges facing the government in the two regions are different, and the two programs reflect this. The federal government's role and the actions and results it plans are not always the same in both regions. By design, St. Lawrence Vision 2000 is an integrated partnership between the governments of Canada and Quebec. Underpinning this partnership is a Canada–Quebec Agreement. Taking into account federal and provincial priorities and available resources, the two governments jointly set the program's objectives for the St. Lawrence River basin and combine their activities toward achieving them.

7.1.7 The Great Lakes 2000 priorities were established chiefly to help meet the federal government's commitments under the Great Lakes Water Quality Agreement with the United States. The federal government and the Ontario government co-ordinate their efforts through the companion Canada–Ontario Agreement. Federal commitments in the Great Lakes—to restore areas of concern, develop lakewide management plans, foster international partnerships, and respond to the International Joint Commission—do not exist for the St. Lawrence River basin.

What we audited

7.1.8 Effective governance is doing things right, more than doing the right things. We looked at whether the programs are structured effectively to achieve their objectives. We also reviewed whether the federal government has followed good management practices. We did not evaluate whether St. Lawrence Vision 2000 and Great Lakes 2000 are working on the right problems. Nor did we assess the quality of the actions undertaken in the programs.

What we found

7.1.9 Roles, actions, and accountabilities. We found that in both programs, the key federal departments were involved in planning and management. In St. Lawrence Vision 2000, most of the funds committed by the federal government were actually spent. In Great Lakes 2000, however, most federal departments other than Environment Canada significantly reduced their financial commitments and involvement after the budget reductions of 1995. Of \$125 million in new funds announced by the Minister of the Environment, only \$14.9 million was distributed to the departments participating in Great Lakes 2000. Although both programs carried out a number of actions, neither achieved all of the results it had planned.

7.1.10 The key roles and responsibilities of both the federal and the provincial partners in St. Lawrence Vision 2000 are clear, and the key results expected of all parties are specified. The program managers have established strong accountability mechanisms as well as management systems capable of tracking actions toward established targets.

7.1.11 The initial design of Great Lakes 2000 clearly identified the role of each participating federal department. But when budget reductions substantially curtailed their participation, their planned actions, targets, and associated accountabilities were never revised accordingly. The companion Canada–Ontario Agreement did not clearly identify the respective roles and

responsibilities of the federal and provincial departments involved. The Agreement expired in 2000; at the end of our audit it had not been renewed.

7.1.12 Local communities. Both programs tried to set up structures that would involve the local communities, though for different reasons. Both have learned valuable lessons about the challenges of mobilizing volunteer community groups, and both have encountered difficulties. In the Great Lakes, a key challenge will be to develop a sense of the permanence—or sustainability—of local structures set up to act on environmental issues. Communities need support from governments to get started but also ongoing support to carry out actions that are beyond local resources or expertise. St. Lawrence Vision 2000 formed ZIP committees as forums to build consensus for action on local issues between the governments and community representatives. It gives these groups stable funding and effective oversight.

7.1.13 Reporting results. St. Lawrence Vision 2000 progress reports, published every two years, provide information on actual spending by each partner and on results achieved toward each key target of the program. Great Lakes 2000 reports its results in the progress reports of the Canada–Ontario Agreement. These reports summarize progress toward targets but do not show federal spending. Reporting by Great Lakes 2000 is out-of-date. We are very concerned that neither program was able to demonstrate a link between the achievement of its planned results and changes in the state of the environment.

7.1.14 The broad ecosystem approach. One of the principles underlying both these programs is the ecosystem approach. Both have features of such an approach; they both deal with not just one aspect of the environment but a series of interrelated environmental and sustainable development issues.

7.1.15 An ecosystem approach considers the effects that a program's activities in one part of the ecosystem may have on other parts. Recognizing that roughly 40 percent of the pollution in the St. Lawrence River originates upstream in the Great Lakes, we expected to find some form of co-ordination between Great Lakes 2000 and St. Lawrence Vision 2000.

7.1.16 Basin-wide perspective. In 1997, departmental officials of both programs identified several areas where better integration of upstream and downstream activities would benefit the environment, among them the following:

- toxic substances;
- water levels, including environmental criteria and regulation;
- technologies for cleaning up contaminated sediment and soil; and
- indicators of the state of the environment.

We found, however, that co-ordination between the two programs has been limited.

7.1.17 We are particularly concerned that they have done little to co-ordinate their use of indicators of the state of the environment. Common indicators

would make it easier for managers, Parliament, and the public to understand the evolution of the whole Great Lakes and St. Lawrence River basin ecosystem.

7.1.18 Finally, we found no formal means of sharing information and lessons learned. At the community level, Quebec ZIP committees and the Ontario public advisory committees have little knowledge of what their counterparts have achieved. For example, the Haut Saint-Laurent and Jacques-Cartier ZIP committees were both involved in projects to clean up contaminated sediment. They were not aware that the public advisory committee in the Collingwood area of concern had succeeded with similar cleanup activities in 1994.

What we recommend

7.1.19 Our findings suggest the need to provide clear and specific descriptions of federal roles, actions, and accountabilities; report better how program results contribute to improving the environment; and co-ordinate activities better across the basin.

7.1.20 Environment Canada, possibly in collaboration with its partners, should develop and adopt key common indicators of the state of the environment in the basin. It should also use program performance indicators to report publicly how the results of the renewed Great Lakes 2020 program and St. Lawrence Vision 2000 contribute to environmental changes.

7.1.21 Before they measure changes in the environment, Environment Canada and its partners should allocate enough permanent resources to monitor the state of the environment in the basin.

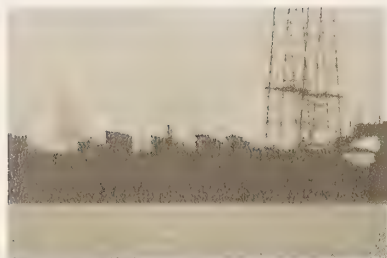
7.1.22 Environment Canada should ensure that Great Lakes 2020 and a renewed Canada–Ontario Agreement clearly identify the respective roles and responsibilities of the federal departments and provincial ministries and the resources needed to carry them out.

7.1.23 In the renewed Great Lakes 2020 program, Environment Canada should report the spending of each federal partner at least every two years, and relate the spending to the results achieved.

(See Summary for departmental responses.)

7.2 St. Lawrence Vision 2000: A Federal–Provincial Partnership

The issue



7.2.1 The current St. Lawrence Vision 2000 program has evolved considerably from its earliest days. Phase I (1988 to 1993) focussed on measures to reduce toxic liquid emissions from 50 plants that were the biggest polluters of the St. Lawrence River. At the time, the Quebec government had efforts under way to upgrade its municipal treatment of waste water. Phase II of the program (1993 to 1998) extended the measures to another 56 plants, some of them on the river's tributaries. The program also emphasized the need for better knowledge of the environmental threats to the St. Lawrence River.

7.2.2 Phase III (1998 to 2003) expanded further to involve communities in tackling local issues, reduce pollution from other sources (agricultural runoff and emissions from small and medium-sized enterprises), and deal with navigation issues such as shoreline erosion. These expanded measures are addressed in the program's current three broad objectives:

- protect ecosystem health;
- protect human health; and
- involve riverside communities in “helping to make the St. Lawrence more accessible and recover its former uses.”

St. Lawrence Vision 2000 is a combination of federal and provincial actions to achieve those objectives.

The federal role

7.2.3 The partnership between the two governments is forged through the Canada–Quebec agreement for joint action on the St. Lawrence. Through the Agreement, the federal government has committed \$123 million to phase III of the program, and the government of Quebec \$116 million. Of this budget, \$184 million came from existing programs; the federal and provincial treasury boards provided \$55 million in new funds. (In phase II, the federal and provincial governments committed \$100 million and \$91 million respectively; in phase I, the federal share was \$110 million.)

Our audit questions

7.2.4 Is St. Lawrence Vision 2000 structured adequately to meet the federal objectives of managing ecosystem and human health issues and promoting community involvement?

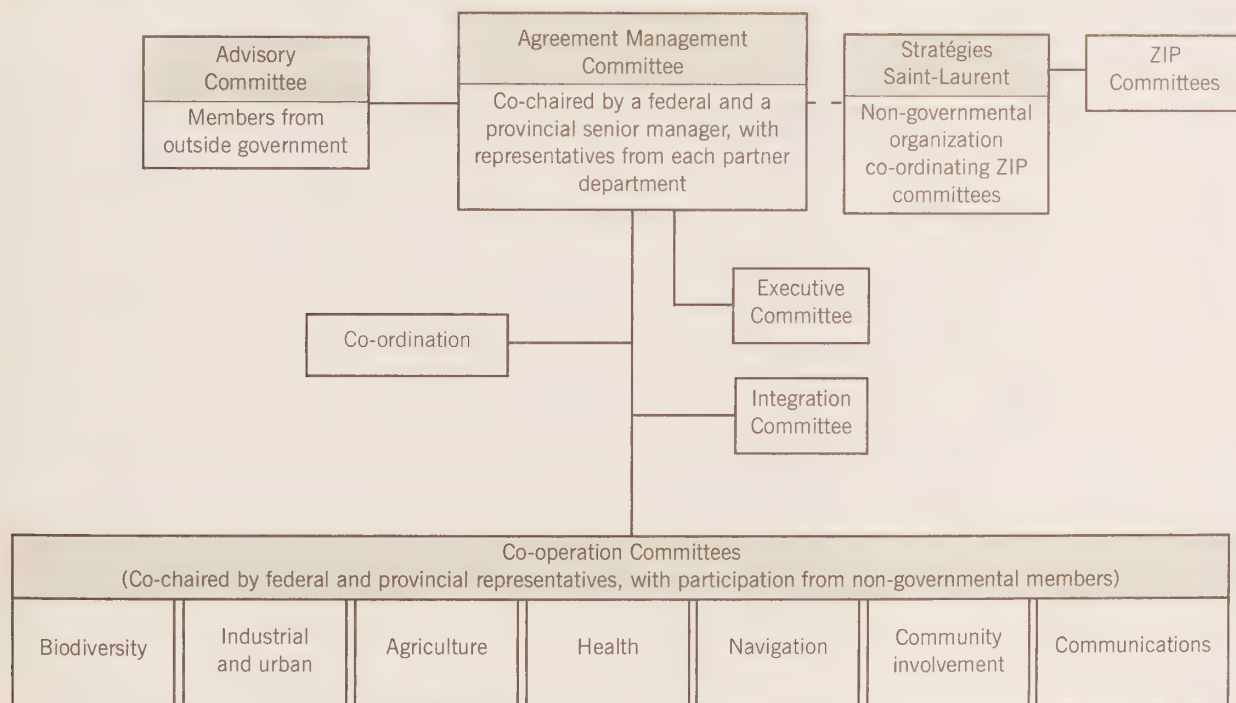
- Are the roles and responsibilities of both the federal departments and their partners clear? Are there effective mechanisms for accountability?
- Is the program measuring progress and reporting in a credible and transparent way to Parliament and the public?
- Did the federal government consider environmental, social, and economic information in deciding to renew the program?
- Do the federal departments involved in St. Lawrence Vision 2000 share information and lessons learned with their Great Lakes 2000 counterparts?

The story **A management structure built around issues**

7.2.5 Eight federal departments participate in phase III of St. Lawrence Vision 2000: Environment Canada, Fisheries and Oceans, Health Canada, Agriculture and Agri-Food Canada, Parks Canada Agency, Canada Economic Development for Quebec Regions, Public Works and Government Services Canada, and Transport Canada. They are formal partners in the program with five Quebec departments: Environment; Wildlife and Parks; Health and Social Services; Transport; and Agriculture, Fisheries and Food. The program's management structure reflects the federal-provincial partnership in protecting the St. Lawrence River (Exhibit 7.2). In our view, important and strong features of this structure include the following:

- The Agreement Management Committee, co-chaired by Environment Canada's regional director for the Quebec region and an assistant deputy minister of the Quebec Department of the Environment. Senior-level people represent the partner departments on the Committee.
- Co-operation committees (comités de concertation), established to address activities under six broad issues as well as communications. A federal and a provincial representative co-chair each of these committees except for the agriculture committee.

Exhibit 7.2 Management structure of St. Lawrence Vision 2000, phase III



Source: St. Lawrence Vision 2000, phase III, 1998–2003

- An Advisory Committee, comprising members from outside government with wide-ranging expertise on environmental and sustainable development issues who provide regular advice to the Agreement Management Committee.
- Stratégies Saint-Laurent, a non-government organization that has signed a formal agreement with the Agreement Management Committee and co-ordinates the activities of 14 community-based committees established in ZIPs (zones d'intervention prioritaires or areas of prime concern). The ZIP committees employ full-time co-ordinators, funded by the governments.
- The Community Interaction program, which provides funding to local projects.
- Several other associations, enterprises, and environmental organizations involved less formally in the partnership.

7.2.6 The necessary partners. Three federal departments and two provincial departments were involved in phase I of the program. Since then, the partnership has expanded to the eight federal departments whose mandates include the issues addressed by the program and whose participation is essential to get results.

7.2.7 In phase II, co-operation committees were limited to government members. In phase III, membership was opened to other stakeholders whose participation was considered essential; five of the seven committees now have at least three members from outside government, selected for their expertise in the subject area. The case study Reducing ship speed on the St. Lawrence River to minimize erosion shows how a co-operation committee with an extensive network of participants can help get results.

Reducing ship speed on the St. Lawrence River to minimize erosion

Riverside communities have long argued that the high speeds of commercial boats and pleasure craft have accelerated erosion in many parts of the St. Lawrence River. The St. Lawrence Vision 2000 navigation committee decided to tackle that problem.

The Navigation Co-ordination Committee has 18 members and is co-chaired by Fisheries and Oceans and the Quebec Department of Transport. Federal members represent Environment Canada and Transport Canada; eight other members are from organizations outside government. They include private industries and associations involved in marine transportation and environmental groups who want to protect the river for local residents' use.

Through the efforts of the navigation committee, three major marine transportation associations that affect a significant portion of ship traffic on the St. Lawrence announced in November 2000 that their members would voluntarily reduce their speed along a 25-kilometre stretch of the St. Lawrence. That stretch is particularly sensitive to erosion. The Canadian Coast Guard agreed to monitor boat speed in the area to see whether this voluntary measure would work. Preliminary results are encouraging and show a reduction in boat speeds.

7.2.8 Clear roles and responsibilities. We examined the management structure of the program's phase III to determine whether, for each issue area, the roles of each federal department and the Province are clear and accountability well defined. We found that the federal and provincial partners clearly identified in the Canada-Quebec Agreement the key results they planned to achieve and what each would contribute to achieving each result (Exhibit 7.3).

Exhibit 7.3 Key intended results and partners—St. Lawrence Vision 2000, phase III

Key intended results	Federal departments	Provincial departments
Community involvement		
Support community involvement in 14 riverside communities (ZIPs).	Environment Canada*	Wildlife and Parks*
Disseminate scientific knowledge to the population and to decision makers.	Fisheries and Oceans	Environment
Biodiversity		
Protect species.	Environment Canada*	Wildlife and Parks*
Protect habitats.	Parks Canada	Environment
Assess impacts of water level variations.	Canada Economic Development for Quebec Regions	
Implement an integrated monitoring system.	Fisheries and Oceans Public Works and Government Services Transport Canada	
Human health		
Reduce public exposure to contaminated recreational waters and drinking water and to consumption of contaminated aquatic products.	Health Canada* Environment Canada	Health and Social Services*
Industrial and urban issues		
Control and inspect industrial sector.**	Canada Economic Development for Quebec Regions	Environment*
Provide technical expertise and financial support for new pollution prevention technologies.	Environment Canada*	
Support pollution prevention measures in small and medium enterprises.		
Navigation issues		
Develop a sustainable navigation strategy.	Coast Guard (Fisheries and Oceans)*	Transport*
Protect the banks of the St. Lawrence against erosion.	Environment Canada	Environment
Develop guidelines for management of environmental risks, sediment management, discharge of ballast water.	Transport Canada Public Works and Government Services	Wildlife and Parks
Agriculture issues		
Control and inspect agricultural industries.**	Environment Canada	Agriculture, Fisheries and Food*
Reduce use of pesticides by 50% until 2003.	Agriculture and Agri-Food Canada	Environment*

* Departments co-chairing the co-operation committee are managing the issue.

** The federal government is not involved in achieving this result.

Source: Canada-Quebec Agreement for Joint Action of the St. Lawrence, 1998

7.2.9 The management framework developed in phase III defines the role of each committee. The agreement that *Stratégies Saint-Laurent* signed with the Agreement Management Committee explains its role and responsibilities.

7.2.10 Environment Canada has co-ordinated the federal efforts since *St. Lawrence Vision 2000* began in 1988. Other federal departments and their provincial counterparts recognize and value its leadership. We observed good collaboration and regular communication among departmental officials. Provincial officials said, anecdotally, that they sometimes know more about their federal partners' activities than those of their own departmental colleagues.

7.2.11 The Agreement specifies that the federal and provincial co-chairs of the Agreement Management Committee are jointly accountable for the whole program. It also identifies the departments accountable for each intended result.

Periodic public reporting on progress

7.2.12 The last two progress reports the program published were *St. Lawrence Vision 2000: Five Year Report 1993–1998* in phase II and *St. Lawrence Vision 2000 Biennial Report 1998–2000* in phase III. The reports show what each federal and provincial department spent on each main program issue and the results they achieved toward each key target (see Exhibit 7.4 for key results of phase II).

7.2.13 The 1998–2000 progress report acknowledges some of the difficulties encountered—notably, in introducing pollution prevention measures in small and medium-sized firms. But the report was not as straightforward as a midterm internal review conducted in 2000. The review identified more specifically areas where intended results would likely not be achieved without adjustments.

Exhibit 7.4 Key results—*St. Lawrence Vision 2000*, phase II

Issues	Intended results for 1998	Results achieved in 1998*
Biodiversity	Protect 7,000 hectares of habitat.	6,738 hectares protected (96%).
Agriculture	Produce agricultural cleanup action plans for four basins.	Action plans produced for all four basins.
Community involvement	Prepare 11 environmental reports to support ecological remedial action plans for the 10 existing ZIP committees.	13 environmental reports prepared (since beginning of program) and 11 remedial action plans submitted by ZIP committees.
Decision support	Publish a second joint state-of-the-environment report on the St. Lawrence.	<i>The State of the Environment Report on the St. Lawrence</i> was published in 1996. A second report, comprising five issue sheets, was published in 1998.
Health	Evaluate the risks associated with contaminants by developing exposure indicators and other tools.	38 studies were conducted. Two types of indicators of human exposure to chemical contaminants were developed.

Exhibit 7.4 (Continued)

Issues	Intended results for 1998	Results achieved in 1998*
Protection	<p>Implement measures targeting 106 priority industrial plants in order to do the following:</p> <ul style="list-style-type: none"> • reduce by 90% the amount of toxic effluent discharged from 11 plants with inadequate wastewater treatment; • optimize the reduction of discharges of toxic effluent at 22 plants where treatment technologies have already been installed; and • assess the toxic effluents discharged by 23 regulated plants and determine the corrective measures needed to minimize effects on the environment. 	<p>Significant corrective action needed for 5 of the 11 plants; corrective actions still to be implemented.</p> <p>Most establishments in the group have adopted improved production practices and technologies. Up to six of these plants could undertake additional cleanup initiatives or minor corrective action.</p> <p>Reduction of 89% in liquid toxic effluent discharged into the environment (Chimiotox index) was achieved by the end of 1996.</p> <p>Reduction of 96% in liquid toxic effluent from 1988 to 1995 was achieved for the 50 plants initially targeted in 1988 (the reduction target was 90%). An environmental assessment of the 50 plants was conducted.</p>
Restoration	Clean up Lachine Canal.	<p>Following public hearings, a federal–provincial environmental assessment panel recommended against the large-scale decontamination of sediment in the Lachine Canal because it was not a threat to public health and the expected environmental gain was small. Models have shown that the reopening of the canal does not pose any risk of raising the contaminated sediments.</p>

* As presented in the 1993–1998 five-year report on phase II of St. Lawrence Vision 2000. The report discusses the results achieved for 33 of the 34 key intended results. We did not audit these results. We are presenting, for illustrative purposes only, 9 key intended results and the actual results achieved.

The ZIP committees: People can make a difference

7.2.14 Involving communities is one of three key objectives of St. Lawrence Vision 2000. A federal program under phase II, Community Interaction is now a joint federal–provincial program. This signals the importance that both governments attach to community involvement, and it is consistent with the federal government’s commitment to promoting sustainable communities. The case study Reclaiming the Îles de la Paix shows how communities can make a difference.

7.2.15 ZIP committees are the way the program involves riverside residents. The committees began as local initiatives supported by an environmental organization. Phase II integrated them with St. Lawrence Vision 2000 and gave them significantly more resources. *Stratégies Saint-Laurent* was created to co-ordinate their activities.

7.2.16 **A local forum for consensus building.** Although they get involved directly in small restoration projects, the ZIP committees’ role is to build local consensus on actions needed to address local environmental issues, create an action plan, and mobilize efforts to carry out the plan. Each committee is required to include representatives from a range of community interests: environmental associations; industry and commerce; and social, cultural, and municipal organizations. Their specific composition and levels of

Reclaiming the Îles de la Paix

February 2000. It was minus 25 degrees Celsius (without the wind chill factor), but the three volunteers standing on the ice in the middle of the St. Lawrence River were smiling. The ice bridge they were building from the mainland to the Îles de la Paix was now three feet thick. Just two more inches, and trucks could begin carrying the 10,000 tonnes of stone needed to protect the islands' shoreline from excessive erosion.

A week later, the volunteers were no longer smiling. Temperatures much higher than normal had thawed their winter road to the islands before it was safe to use. Disappointed but not discouraged, they resolved to try again in 2001 because this was the most economical way to carry the needed equipment and material. They were successful in building a snow bridge the next winter and completed the planned restoration work in spring 2001.

The Îles de la Paix are a national wildlife and migratory bird reserve, one of the last natural wetlands in Lake St. Louis (a widening of the St. Lawrence River west of Montreal). From 1964 to 1993, the islands lost 52 percent of their surface to erosion.

The Îles de la Paix restoration project is one of 20 in the Lake St. Louis action plan prepared by the Haut-Saint-Laurent ZIP committee. The project is also one of 105 that the Community Interaction program has financed since 1998.

participation vary from one ZIP committee to another. And the results they produce vary, too.

7.2.17 The case study Building consensus for action on contaminated sediments illustrates the important role that community groups can play. It also shows the limits of local capacity and the ever-present need for governments to act.

7.2.18 Good provision for clear accountability. We examined whether the ZIP committees have the capacity to deal with the responsibilities given to them under St. Lawrence Vision 2000. The federal and provincial governments do not impose environmental priorities on the ZIP committees. Rather, the committees prepare action plans that reflect a range of community priorities, including but not limited to environmental ones. These action plans are supported by an Environment Canada evaluation of environmental issues. Action plans identify projects at the local level. The majority of projects funded by the Community Interaction program are aimed at protecting species and restoring habitat.

7.2.19 The agreement between the federal and provincial governments and Stratégies Saint-Laurent states that ZIP committees are to link their activities to their action plans and report on them regularly. Every year, each ZIP committee must produce a business plan that sets out its projects for the coming year. Six months into the year, it has to produce a progress report and, at the end of the year, a final report on its activities and the results it has achieved. These reports are reviewed by Stratégies Saint-Laurent; then Environment Canada, which funds the ZIP committees, evaluates the reports before authorizing any payment of government money. ZIP committee members are directly accountable for prudent management of the funds.

Building consensus for action on contaminated sediments

ZIP committees do not have the mandate or the resources to play an active part in cleaning up contaminated sediment or in any other large-scale project. Finding that contaminated sediment was a problem in their areas, two ZIP committees attacked it with the only means they had: trying to build consensus.

Each of the committees is unique. The Haut-Saint-Laurent ZIP is in a fairly industrialized region with medium-sized cities; the Jacques-Cartier ZIP is in the heart of industrial Montreal.

In the Haut-Saint-Laurent zone is the St. Louis River, which flows into the St. Lawrence. A stretch of its bed is loaded with contaminated sediments from industrial activities in the past. The governments believe the two industries on the riverside are now respecting regulations. In the spring of 2000, both industries agreed to spend about \$4 million together on cleaning up the contamination, and they proposed a schedule for the work. Since then, they have hired a consulting firm to develop the project and conduct impact studies.

In the Jacques-Cartier zone, a contaminated area of the Port of Montreal called sector 103 had residents worried. Over the years, several petroleum and metal-refining companies had been active in the area. In July 2001, three of the four companies involved, the Port of Montreal, and Environment Canada were negotiating an agreement to address the decontamination of the sector.

In both cases, ZIP committees made a difference. Environment Canada and its provincial counterpart had been unable to convince the riverside companies to commit to decontamination until communities got involved.

Stratégies Saint-Laurent also has to submit a business plan and progress reports to Environment Canada.

The federal government meets most of its financial commitments

7.2.20 Given the budget cuts that followed Program Review, in phase II the federal government spent only \$84 million of the \$100 million it had committed to spend (Exhibit 7.5). Federal officials evaluated the impact of the cuts on the delivery of certain program activities. We could not get formal evidence that they had shared that information with their provincial partners. Monitoring of the state of the St. Lawrence was one of the activities affected by Program Review. Now, three years into phase III, all federal departments except Health Canada appear to be meeting their financial commitments.

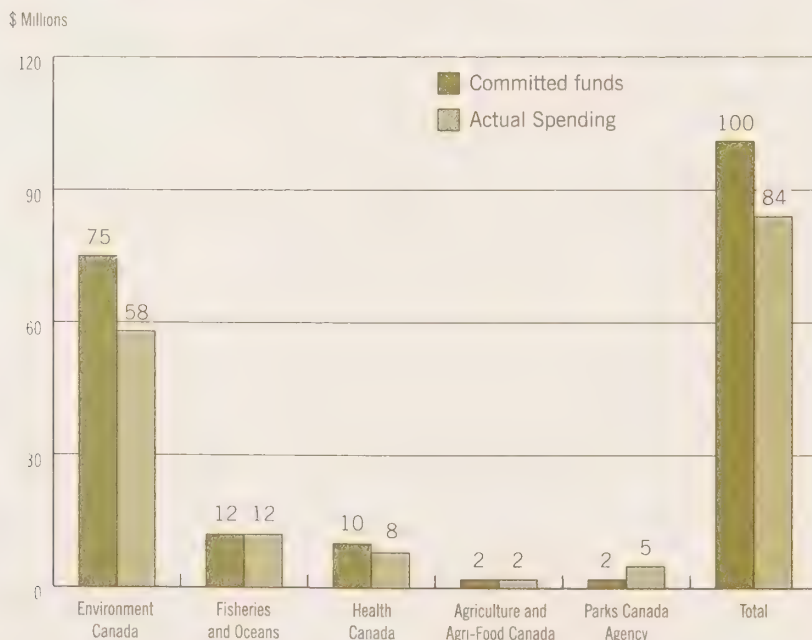
7.2.21 By January 2001, Health Canada had spent only 27 percent of the \$11 million it had committed for the five-year program, not the expected 55 percent. Furthermore, its continued participation in 2001–02 was in doubt. This has had an impact on the provincial contribution, which is directly related, and thus on the research and communication activities conducted by both governments to reduce public exposure to contaminated water and contaminated fish. The participation of Health Canada has since been confirmed, but at a reduced level.

Measuring the impact: a long way to go

7.2.22 Protecting ecosystem health and human health and recovering the various uses of the river for the population are the three overarching goals of St. Lawrence Vision 2000. The program activities were selected for their potential contribution to achieving one or more of those goals. From the beginning of the program in 1988, its managers took a “managing for results” approach and tried to measure whether they were achieving the intended results for each activity. In phases I and II, for example, one of the key targets of the program was a 90 percent reduction in liquid toxic effluents by a group of large industries; the actual performance was measured and the results reported in St. Lawrence Vision 2000 progress reports.

7.2.23 One big gap remains. Although program managers tracked whether targeted results were achieved for each activity—whether they had done what they said they would do—they did not verify whether those results did indeed contribute to protecting the environment and human health, the overall goals of the program. Very few of the performance measures used before 2001 indicated the program’s impact on the environment. The size of the reduction in liquid toxic emissions by industry, for example, is a useful indicator but does not tell us what the quality of the water is now, or whether it has improved since the program began. More information is needed on how the state of the environment has evolved during the past several years so we can estimate the program’s impact on the St. Lawrence over its three phases.

Exhibit 7.5 Federal spending under St. Lawrence Vision 2000, phase II



Source: Canada–Québec Agreement for joint action on the St. Lawrence, 1998
Five-Year Report 1993–1998 St. Lawrence Vision 2000
(We did not audit the information from the five-year report.)

7.2.24 Improved ability to monitor the state of the environment was one intended result of phase III and one of two priorities recognized after the summer 2000 midterm review. A proposal for monitoring the state of the St. Lawrence described the shortcomings of existing indicators and proposed new ones. It also insisted that monitoring had to continue permanently, beyond the end of St. Lawrence Vision 2000. In spring 2001, the only public document integrating the available information on the state of the environment was dated 1998, and it used data from 1996 and earlier. Managers are planning to present and share updated information before the end of phase III.

7.2.25 We found that managers have developed program performance indicators and indicators of the state of the St. Lawrence as two separate sets, when they should be linked. Finally, we observed that there is little co-ordination with Great Lakes 2000 managers to identify and use some common indicators of the state of the environment. We discuss these findings in Subsection 7.1.

Good management practices for learning and adapting

7.2.26 A system in place for follow-through. St. Lawrence Vision 2000 has developed a computerized system for managing each of its elements, known as *Système de suivi de gestion*. Managers regularly track actual spending and activities compared with commitments. Progress can be tracked by agency or by commitment. For example, partners can see which department or agency is responsible for what activities in the five-year program; which activities have been completed; and what actions still need to be completed. Partners in the program have easy access to that information. Co-ordinators of the co-operation committees enter information in the system on progress toward each intended result, using the indicators from the recently developed performance framework. The system provided key information for the 2000 midterm review. We observed that the quality of the information and the frequency of its updating vary from one issue to another.

7.2.27 An inclusive and extensive planning process for phase III. In planning for phase III, the federal and provincial partners first agreed on the highest-priority environmental threats. These include the impact of endocrine-disrupting chemicals on health, variations in water levels, invasion by exotic species, agricultural use of pesticides, and the impact of liquid effluents. The discussion was then opened to potential new partners and to the Advisory Committee. The committees and working groups on specific issues included 200 people, representing both levels of government as well as other interested groups.

7.2.28 Social, economic, and environmental information used in deciding on phase III. Social concerns were well reflected in the discussions and documents of working groups on health, community involvement, and navigation. Participants also considered the economic dimensions of resolving navigation, industry, and agriculture issues, among others. And working groups used environmental science information. The Development Committee and the Advisory Committee integrated the three dimensions in

their analysis and in their recommendations to the Agreement Management Committee.

7.2.29 Decision makers took into account a number of those recommendations—for example, to step up the role and interventions of *Stratégies Saint-Laurent* and the ZIP committees, widen the base of stakeholders, and create a navigation committee.

7.2.30 In 2000, the program's managers prepared a long-term strategy for the St. Lawrence. The strategy built on the strategic plan for 1999 to 2020 by Environment Canada's Quebec region, and on long-term social indicators. It stated the long-term vision for the St. Lawrence: an environment full of life, prosperous and sustainable, and contributing to the well-being of the population.

7.2.31 Regular reviews . . . but inability to implement one key recommendation. Environment Canada reviewed its participation in St. Lawrence Vision 2000 at the end of phase II. The Department addressed a number of the weaknesses by better defining roles and responsibilities, preparing a long-term strategy for the St. Lawrence, and improving tracking systems. Other deficiencies, however, still have to be corrected—for example, the lack of linkages between this program and other ecosystem programs and the need for performance indicators that define environmental results.

7.2.32 Officials from Environment Canada and Environment Quebec conducted a joint midterm review of phase III. They presented the results to program partners and to representatives of *Stratégies Saint-Laurent* and the Advisory Committee at a two-day workshop. The purpose was to allow for any early adjustments needed. The review showed that two key areas needed more resources: monitoring the environment, and the navigation issue. The Agreement Management Committee allocated more funds to these two priorities for the two years left in phase III. But the amounts were significantly less than program managers had asked for. Whether these midcourse adjustments will work remains to be seen.

7.2.33 The Advisory Committee is, in itself, a regular source of independent review. It, too, stressed the need for more information on the state of the environment in its notice to the Agreement Management Committee about the midterm review.

7.2.34 In 1993, our Office conducted an audit of phase I of the program. Management applied most of our recommendations—one of which dealt with the need for program evaluations—in phase II or III. A key weakness that was not addressed adequately was, again, the need for the progress reports to explain better the relationship between the program's objectives and the overall health of the ecosystem.

7.2.35 Sharing information and lessons learned within the program. The management and co-ordination structure, the presence of *Stratégies Saint-Laurent*, and the personal networks developed over the years allow for a regular exchange of information and lessons learned among the partner departments and the community organizations.

7.2.36 Limited linkages with the Great Lakes 2000. We found limited sharing of information and lessons learned with the other ecosystem program in the basin, Great Lakes 2000. We also found limited co-ordination in identifying and selecting indicators of the state of the environment. (We discuss this in Subsection 7.1.)

Conclusion

7.2.37 St. Lawrence Vision 2000 has a good structure for managing issues that involve several departments and governments. It generally follows good management practices. But despite repeated recommendations by outside observers and by program participants themselves, the program's managers have not been able to fill a major gap: there is still little information on the state of the environment of the St. Lawrence River. Without this information, Parliament, the public, and program managers themselves cannot estimate how St. Lawrence Vision 2000 has contributed to protecting the environment and human health, the overall goals of the program.

Our audit objectives and main findings

Holding the federal government to account		
1 Has the government fulfilled its commitments?	Commitments	Results
	The federal government committed \$100 million to St. Lawrence Vision phase II.	The federal government actually spent \$84 million.
Assessing the government's performance		
2 Has the government applied good management practices?	Program managers have been measuring progress made against St. Lawrence Vision 2000 (SLV2000) targets.	There is not enough information on the state of the environment of the St. Lawrence. So it is difficult to know what global effect the SLV2000 program has had on the environment of the St. Lawrence over its three phases.
	A system is in place to track spending and progress achieved.	
	An inclusive and extensive planning process for phase III used social, economic, and environmental information.	Managers were unable to act on one key recommendation for more performance indicators that define environmental results.
	The Advisory Committee provides regular internal reviews and advice.	
	There is good sharing within SLV2000 of information and lessons learned.	There is limited sharing with Great Lakes 2000 of information and lessons learned.
		There is limited co-ordination with GL2000 on state-of-the-environment indicators.

Our audit objectives and main findings

Assessing the government's performance

❶ Has the government established good governance structures?

Strengths

The eight federal departments whose involvement was essential to achieve the intended results of SLV2000 are partners of the program.

The Canada–Quebec Agreement clearly identifies key intended results as well as the financial contribution of each federal and provincial department.

ZIP committees are forums for consensus building on local environmental and sustainable development issues.

ZIP action plans identify projects at the local level. The plans we examined reflect community priorities and capacities.

Good provision is made for clear accountability of ZIP committees.

SLV2000 progress reports, published at least every two years, provide information on actual spending by each federal and provincial department. They also present results achieved for each key program target.

Weaknesses

SLV2000 progress reports do not show what impact the federal and provincial efforts have had on the environment of the St. Lawrence.

7.3 Great Lakes 2000: Meeting Binational Commitments

The issue



7.3.1 Canadians and Americans together witnessed a slow deterioration of the Great Lakes in the last half of the 20th century. Throughout the 1960s, the governments of both countries recognized the need for a concerted effort to prevent further harm and reverse the damage to the Great Lakes. The Great Lakes Water Quality Agreement between the two countries was designed to co-ordinate their efforts in the Great Lakes basin.

7.3.2 Recognizing the need to also co-ordinate federal and provincial action to fulfil Canada's obligations under the Great Lakes Water Quality Agreement, the federal government and the Province of Ontario signed the first Canada–Ontario Agreement in 1971. It was revised in 1994, and expired in 2000; at the end of our audit, its renewal was still being renegotiated.

7.3.3 In 1989 the federal government launched its \$125 million Great Lakes Action Plan. A second phase, the \$150 million Great Lakes 2000 program, was approved in 1994. In 2000, another \$40 million was allocated to the third phase, Great Lakes 2020. These are wholly federal programs.

The federal role

7.3.4 The federal partners in Great Lakes 2000 were Environment Canada, Fisheries and Oceans, Health Canada, Agriculture and Agri-Food Canada, Transport Canada, Parks Canada Agency, and Public Works and Government Services Canada. The provincial partners, through the Canada–Ontario Agreement, were the Ontario ministries of the Environment; Natural Resources; Health and Long-Term Care; and Agriculture, Food and Rural Affairs. The far-reaching commitments in the Great Lakes Water Quality Agreement require the federal government to also work with partners outside government—scientists, academia, citizens, and industry—to restore and protect the Great Lakes ecosystem.

Our audit questions

7.3.5 Was Great Lakes 2000 structured adequately to meet the federal government's objectives, including its commitments under the Great Lakes Water Quality Agreement?

- Were the roles and responsibilities of both the federal departments and their partners clear? Were effective mechanisms for accountability in place?
- Is the program measuring progress and reporting in a credible and transparent way to Parliament and the public?
- Did the federal government consider environmental, social, and economic information in deciding to renew the program as Great Lakes 2020?
- Did the federal departments involved in the program share information and lessons learned with their St. Lawrence Vision 2000 counterparts?

The story

7.3.6 Great Lakes 2000 is the means the federal government uses to co-ordinate its activities under the Great Lakes Water Quality Agreement and the Canada–Ontario Agreement. Program officials work with U.S. agencies on many binational issues; they work with provincial agencies to

co-ordinate federal–provincial activities. This makes for a complex, three-tiered management structure (Exhibit 7.6). Features of this structure and the program include the following:

- a binational executive committee for the Great Lakes Water Quality Agreement, co-chaired by Environment Canada and the U.S. Environmental Protection Agency;
- a review committee to co-ordinate federal–provincial priorities and actions under the Canada–Ontario Agreement;
- a management committee and an executive committee to co-ordinate federal priorities and actions under Great Lakes 2000; and
- funding from the Great Lakes Sustainability Fund (previously the Great Lakes 2000 Cleanup Fund) for cleanup actions in areas of concern.

Good initial planning compromised by Program Review

7.3.7 An initial design with clear roles and responsibilities, well-defined expected results. Great Lakes 2000 was designed to respond to Canada's obligations in the Great Lakes Water Quality Agreement and to move broadly to counter the most critical environmental threats to the Great Lakes basin. It had four general objectives:

- clean up degraded areas of concern and restore their beneficial uses;
- prevent and control the presence of persistent toxic substances in the Great Lakes ecosystem;
- conserve human and ecosystem health, primarily through lakewide management plans; and
- manage the ecosystem in an integrated way.

7.3.8 For each of these four major objectives, managers identified specific expected results—24 in all (Exhibit 7.7). In each area of activity, the program established milestones for the first year, defined the results expected in the six years of the program, and identified the federal departments accountable for achieving those results. It also established specific federal accountability for each expected result shared with the Province under the Canada–Ontario Agreement.

Funding—here today, gone tomorrow

7.3.9 In April 1994, the federal Minister of the Environment announced the six-year, \$150 million Great Lakes 2000 program as evidence of the government's commitment to the basin ecosystem in a time of fiscal restraint. The amount included \$125 million in new funds and \$25 million in continued support for developing and demonstrating cleanup technologies.

7.3.10 Ministers approved \$14.9 million of the promised \$125 million. It was distributed to the seven participating federal departments for the first year's activities. In 1995, however, the departments were informed that they would not get any funds for the remaining five years of Great Lakes 2000. The Treasury Board told them to find the funds in their own annual budgets.

Exhibit 7.6 Great Lakes 2000 management structure

Linkages with the Canada–Ontario Agreement and Great Lakes Water Quality Agreement structures

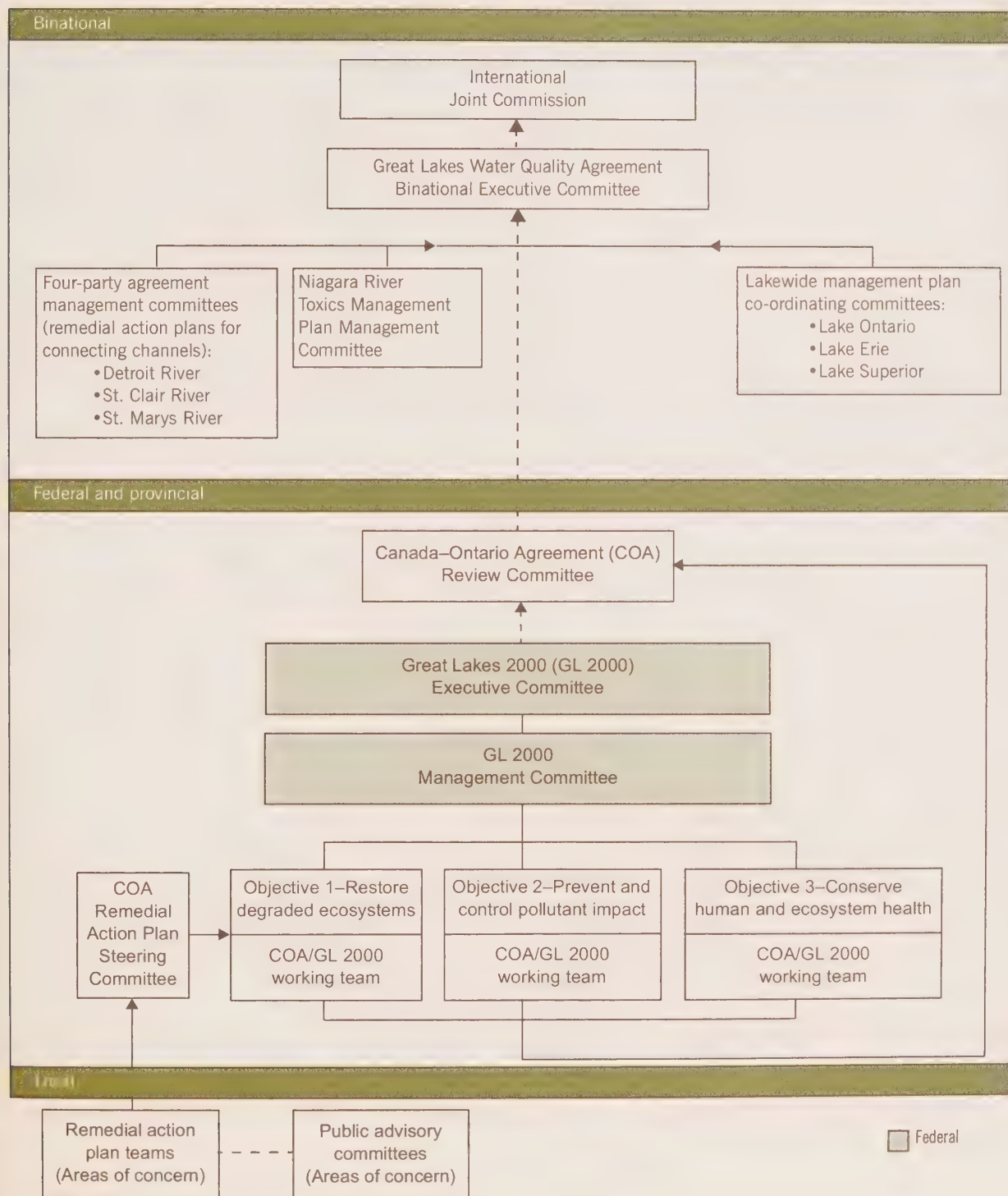


Exhibit 7.7 Expected results and federal partners in Great Lakes 2000

Expected results	Federal departments
Objective 1—Restore degraded ecosystems	
Remediate areas of concern	Environment Canada
Rehabilitate habitats and populations	Health Canada
Remediate groundwater	Fisheries and Oceans
Clean up waste sites	Transport Canada
Remediate contaminated sites	Public Works and Government Services Canada
Protect humans at risk	Canadian Heritage
Objective 2—Prevent and control pollutant impacts	
Virtually eliminate persistent and bioaccumulative toxic substances	Environment Canada
Reduce releases of toxic substances	Health Canada
Improve drinking water and sewage treatment	Transport Canada
Minimize solid and hazardous waste	Agriculture and Agri-Food Canada
Prevent and control spills and reduce fugitive emissions	Canadian Heritage
Reduce long-range air pollution	
Objective 3—Conserve human and ecosystem health	
Protect and promote human health	Environment Canada
Sustain healthy ecosystem populations and processes	Agriculture and Agri-Food Canada
Protect special areas	Fisheries and Oceans
Enhance sustainable land use	Health Canada
Prevent or manage nuisance exotic species	Canadian Heritage
Prevent or mitigate climate change impacts	Transport Canada
Objective 4—Integrated ecosystem management	
Implement existing policies and enforce legislation	Environment Canada
Focus on citizenship and partnerships	Health Canada
Share strategic ecosystem information	
Conduct ecosystem research and monitoring	
Develop and promote sustainable technologies and practices	
Harmonize and co-ordinate programs	

Source: Great Lakes Action Plan, phase II.

7.3.11 At the same time, however, those budgets were taking hits from Program Review. With 30 to 50 percent of their annual funds gone, most federal departments focussed on their core statutory responsibilities. They gave little or no consideration to the consequences for integrated programs such as Great Lakes 2000. The cuts also affected the departments' ability to participate effectively in the committees and working groups under the binational Great Lakes Water Quality Agreement.

7.3.12 The careful design of the program began to unravel with the withdrawal of some federal departments, notably Fisheries and Oceans (see Long-term impact of program reductions on Fisheries and Oceans). Federal officials at the time agreed on the need to adjust the program and seriously rethink the targets, given the budget constraints imposed on them. However, targets were never revised. The uncertainty of funding made it hard to plan. Health Canada spent less than half the amount it had committed to spend, and it had to suspend work and cancel contracts.

Long-term impact of program reductions on Fisheries and Oceans

The effects of program reductions will not be immediately apparent to outside clients. Research and monitoring data from the 1994 season will be available in 1995 and much time will be required to analyze and report on the 1994 results. However, the impact will become more obvious as long-term monitoring programs disappear. The absence of chemical trends and ecosystem health data will be badly missed when we have to assess the impact of remedial actions at remedial action plan sites or the impact of zebra mussels or contaminants on the lakes Erie and Ontario ecosystem.

The Department of Fisheries and Oceans will continue to send people to remedial action plans and lakewide management plans, but our real value has always been our ability to bring data to the table and to use these data to understand and predict how the Great Lakes are responding to change.

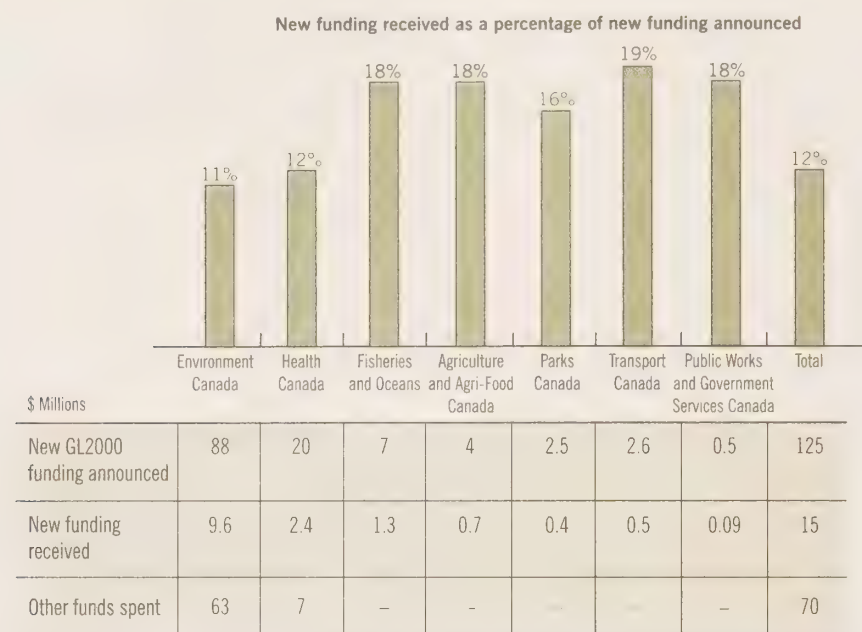
Source: General Impact of Resource Reductions on Canada-Ontario Agreement and GL 2000 Deliverables for Department of Fisheries and Oceans
Letter from Fisheries and oceans to Environment Canada, 11 May 1995

7.3.13 Federal participation affected by Program Review. As the lead department for Great Lakes 2000, Environment Canada was responsible for co-ordinating information and reporting on the progress of the seven federal partners in the program. However, the involvement of the other departments was curtailed significantly by Program Review. Since federal departments weren't bringing much to the table, there wasn't much to co-ordinate.

7.3.14 Federal officials also had to work with their provincial counterparts toward the common goals of the Canada-Ontario Agreement. This partnership was also compromised as a result of the federal Program Review, and later by provincial budget cuts.

7.3.15 Since federal expenditures were not tracked under Great Lakes 2000, we had to piece together the information. Exhibit 7.8 compares planned with actual spending by each department.

Exhibit 7.8 Federal spending under Great Lakes 2000



Source: Based on unaudited information provided by federal departments

7.3.16 Lack of transparency. In the 1994 Canada–Ontario Agreement, both governments agreed that “neither government [would] modify financial support to agreed-upon commitments, programs and activities without consultation.” However, although the federal government informed the Province in broad terms about Program Review, it did not detail for the Province beforehand the implications for the Agreement.

7.3.17 Further, when it did indicate the effects of budget reductions on Great Lakes 2000 targets and schedules, it tried to convey a positive message—that the federal government had protected the Great Lakes program as a priority and the major consequence of Program Review reductions would be to stretch the program to seven years from six. It did not make it clear to the International Joint Commission or to the public and Parliament how Program Review—and subsequent provincial cuts—would affect its ability to meet Canada’s commitments under the Canada–Ontario Agreement and the Great Lakes Water Quality Agreement with the U.S.

7.3.18 Accountability obscured under Canada–Ontario Agreement. When the 1994 Canada–Ontario Agreement was signed, managers of Great Lakes 2000 agreed to report progress using the same framework as the Agreement—targets, planned results, and progress reports. This was intended to simplify management and reporting.

7.3.19 By design, the 1994 Canada–Ontario Agreement goals were almost identical to those of Great Lakes 2000: restore degraded areas, prevent and control pollution, and conserve and protect human and ecosystem health.

The Agreement established an agenda shared between the federal and provincial governments, with 18 elements and 47 specific results planned. That agenda incorporated most of the program and science elements planned for Great Lakes 2000.

7.3.20 The program's managers had identified very clearly what they saw as the federal responsibility for each of the targets that would be shared with the province under the Canada–Ontario Agreement. In the Agreement itself, however, the two governments did not specify the respective roles and responsibilities of the federal departments and the provincial ministries.

7.3.21 Limited opportunity for regular public input. In the Canada–Ontario Agreement, the governments agreed to “provide stakeholders with an annual opportunity to comment on progress to date and future plans.” Eventually, managers abandoned plans to consult stakeholders about the Agreement as a whole, but continued to consult them on an ad hoc basis about separate issues. Ministers made a commitment in 1994 to create an advisory group that would review the overall application of the Agreement, but the commitment was never met.

Weaknesses in reporting

7.3.22 No public reporting on spending. Each department was responsible for tracking and reporting its own activities under Great Lakes 2000. In 1995, Environment Canada developed an internal information tracking and reporting system to track the spending and the progress of the federal partners in Great Lakes 2000. Environment Canada and a few federal departments used the system at first; it was not used at all after 1996.

7.3.23 Although the program required progress reports, we were unable to find any published report that summarized federal spending on the Great Lakes program. Environment Canada's Ontario regional office confirmed that no such report exists. The only reports to Parliament and the public are the progress reports issued every two years on the Canada–Ontario Agreement, and they give no information on spending by federal departments.

7.3.24 Joint reporting on progress but not on final results. Three biennial reports since the Agreement was signed in 1994 have summarized the progress made by federal and provincial agencies toward the Agreement's targets and objectives (Exhibit 7.9). These reports are also how the federal government informs the International Joint Commission of its progress under the Great Lakes Water Quality Agreement. However, the last report published covered 1997 to 1999. A number of the planned results had specific targets for the year 2000 but the report did not comment on the progress made toward some of them. No report is planned to inform Parliament and the public on achievements in 2000, the last year of the Agreement and the program.

Exhibit 7.9 Key results, Canada–Ontario Agreement (1994–1999)*

Objective	Targets for 2000	Results achieved
Restore degraded areas		
Remedial action plans	Restore 60% of impaired beneficial uses across all 17 areas of concern (AOC), leading to the delisting of nine AOCs by the year 2000.	About 13% of beneficial uses impaired by local sources have been fully restored. More than 60% of actions necessary to restore AOCs have been implemented. One AOC (Collingwood Harbour) has been fully restored and delisted.
Species and habitat rehabilitation	Rehabilitate and protect 6,000 hectares of wetland habitat and 600 kilometres of riparian habitats.	The rehabilitation of more than 2,500 hectares of wetlands has been completed, with a further 1,340 in progress. Nearly 540 kilometres of riparian habitat have been rehabilitated, and projects involving an additional 175 kilometres are in progress. As well, 700 kilometres have been protected.
Contaminated sites	Remediate contamination at 10 priority federal sites and 5 orphan sites.	Canada has taken action to remediate 10 federal sites in the Great Lakes basin. These sites have been remediated to a state that meets federal and provincial criteria for environmental remediation. Cleanup at one orphan site has taken place. The property has now been fully decommissioned. Site remediation work continues at four other orphan sites.
Prevent and control pollutant impacts		
Priority toxic substances	Canada and Ontario agree to seek a 90% reduction in the use, generation, or release of seven substances by the year 2000. Work with industry to obtain commitments to achieve targets through formal arrangements, such as memoranda of understanding, and informal arrangements. Promote and encourage implementation by 1998 of pollution prevention programs at targeted industrial facilities discharging to the Great Lakes, through a variety of instruments, including the national ARET initiative.	There has been a 71% reduction in the use, generation, or release of the seven substances. Memoranda of understanding with five industrial sectors have resulted in toxic and hazardous waste reductions of 390,000 tonnes per year. ARET initiatives have resulted in toxic reductions of 24,090 tonnes nationally per year.

*As reported in the 1997–1999 Canada–Ontario Agreement progress report. The Agreement ended in March 2000 but no end-of-program progress report was produced covering the last year of the Agreement. The 1997–1999 progress report discussed the results achieved for all 47 planned results. We did not audit these results. We are presenting, for illustrative purposes only, 7 key planned results and the actual results achieved.

Exhibit 7.9 (continued)

Objective	Targets for 2000	Results achieved
Conserve and protect human health and ecosystem health		
Lakewide planning	<p>Develop ecosystem-based principles, objectives, and indicators to provide direction for management plans for Lake Ontario (by 1995), Lake Superior (by 1996), Lake Erie (by 1996), and Lake Huron (by 2000).</p> <p>Develop Stage 1 lakewide management plans for critical pollutants for Lake Ontario (by 1995), Lake Superior (by 1995), and Lake Erie (by 1998).</p> <p>Develop Stage 2 lakewide management plans for Lake Ontario (by 1997), Lake Superior (by 1996), and Lake Erie (by 2000).</p>	<p>Ecosystem goals and indicators have been developed for Lake Ontario and Lake Superior.</p> <p>Work continues on developing ecosystem objectives for Lake Erie.</p> <p>A Stage 1 report for Lake Ontario was released (1998) as well as a progress report on work completed on the Lake Erie lakewide management plan.</p> <p>All three targets of the Lake Superior lakewide management plan have been met. At this time, there are no plans to develop a lakewide management plan for Lake Huron.</p>
Habitat conservation and protected areas	Apply the principles of the Federal Policy for the Management of Fish Habitat with a goal of net gain in productive capacity of fish habitat basin-wide.	Fisheries and Oceans has entered delivery agreements with a number of conservation authorities and with Parks Canada to implement provisions of the <i>Fisheries Act</i> .
Human health	<p>Protect and promote human health through education, long-term monitoring, and stewardship.</p> <p>By 2000:</p> <ul style="list-style-type: none"> - 70% of the population will be knowledgeable about five key environmental health issues and how to reduce their risk. - a 30% reduction in human health risks associated with exposure to environmental contaminants will be achieved for the general population. - 80% of the population will have significantly increased their understanding and taken action to protect their health through involvement in environmental stewardship. 	Assessments of the Great Lakes basin population's exposure to 11 substances have been completed. Health-related indicators have been developed for the Great Lakes basin population and reports on health effects, exposure, tissue levels, and disease trends have been produced. Research investigating the relationship between environmental factors and human health has been completed or is ongoing. A number of publications and handbooks have been developed to educate the public and promote informed decision-making on health and environment issues.

Support to local communities

7.3.25 The Great Lakes 2000 program has efforts under way to support community involvement in protecting the basin—indeed, the program has fostered many innovations and blazed new trails.

7.3.26 We deal extensively with our concerns about the status of remediation in areas of concern and aspects of the federal government's governance—or lack of it—of the community-based organizations in place to carry out action

plans (see Subsection 3.3). There are significant gaps in the government's activities and considerable work remains to finish the job.

7.3.27 There is a potential contradiction between the goal of delisting an area of concern—suggesting that nothing more needs to be done—and the federal government's commitment to develop sustainable communities. In moving forward on that commitment, the government faces three challenges. The first is simply one of geographic coverage—there are many communities in Ontario that were not specifically designated as areas of concern but that nevertheless confront significant environmental problems. At present, there are no funded plans for action outside areas of concern.

7.3.28 The second challenge is to clarify the local community activities that the government considers are important. Much of the focus in areas of concern has been directed at problems and priorities identified by the federal government. Experience shows that local communities have their own priorities. Existing practices in areas of concern may call for changes in the nature of technical support and funding provided by governments.

7.3.29 The third challenge will be to develop a sense of the permanence—or sustainability—of local structures set up to act on environmental issues. Communities need support from governments to get started; they also need ongoing support to maintain momentum, motivate volunteers, leverage funding, and carry out actions that are beyond their local resources, expertise, or ability.

Management practices: a mixed record

7.3.30 Measuring the state of the environment in the Great Lakes: moving forward. The State of the Lakes Ecosystem Conferences (SOLEC) have been the main tool of the Canadian and U.S. governments to develop and share indicators of the state of the environment in the Great Lakes. Over the past few years, conference participants agreed on several environmental, social, and economic indicators, which are being used now to measure progress. This makes it possible to sketch the state of the lakes. However, this information on the state of the environment is not being used in the progress report of the Canada–Ontario Agreement to show how the results achieved under the Agreement have helped improve the environment of the Great Lakes.

7.3.31 Interim and end-of-program reviews, but no systematic action on recommendations. Great Lakes 2000 has been subject to internal reviews; recommendations in the biennial reports of the International Joint Commission are also relevant to the program. We found that there was no systematic follow-up to ensure that recommended improvements were made.

7.3.32 A 1998 interim review of Great Lakes 2000 illustrates this. Prepared by Environment Canada, it made 32 recommendations to ensure that progress continued toward major planned results. The end-of-program review by Environment Canada's internal audit branch concluded that several weaknesses cited in the interim report—including the lack of follow-up on recommendations and management decisions—had continued to the end of the program.

7.3.33 Similarly, the federal government gave only limited consideration to recommendations in the biennial reports of the International Joint Commission.

7.3.34 Uneven follow-through. We found that in activities to prevent and control the presence of toxic substances, priorities were translated into plans that defined expected results. Managers met annually to report progress; they also identified obstacles to progress and steps to overcome them. The planning and reporting regime provided the information needed for continual improvement.

7.3.35 However, in other areas—cleaning up areas of concern and protecting human and ecosystem health—project managers did not meet periodically. They prepared five-year work plans at the beginning of the program but did not produce annual progress reports.

7.3.36 Limited linkages with St. Lawrence Vision 2000. We found limited sharing of information and lessons learned with the other ecosystem program in the basin, St. Lawrence Vision 2000. We also noted only limited co-ordination between the two programs in identifying and selecting indicators of the state of the environment (see Subsection 7.1).

Planning for renewal of the Great Lakes Program

7.3.37 Environmental, social, and economic aspects were considered. As the expiry of Great Lakes 2000 approached, Environment Canada began planning for the renewal of the program, which eventually became Great Lakes 2020. In February 1999, program managers met in a series of workshops with 350 people representing First Nations, interest groups, private citizens, youth, academe, labour, and all levels of government. The purpose was to get their input for the renewal of the Great Lakes program. These workshops were supported by various issue scans and papers prepared for Environment Canada. Federal departments did not establish their priorities at the outset of this planning process.

7.3.38 The stakeholder groups identified a need to review and revise incentives and subsidies to ensure that they promote desired results; enhance co-ordination among federal departments; and clarify the federal role in providing ecosystem science for decision making. Except for the key economic issue—the need to review and revise incentives and subsidies—Great Lakes 2020 incorporated the stakeholders' concerns.

7.3.39 We also found evidence that information on the state of the environment, notably from SOLEC, had influenced the renewal of the Great Lakes program. The invasion of exotic species, for example, was identified as a growing threat to the basin's sustainability that the program should address.

7.3.40 It is not clear whether the federal government will be able to meet its commitments. In Great Lakes 2020, resources and activities are structured in three broad streams: healthy environment, healthy citizens, and sustainable communities. As they had with Great Lakes 2000, managers

designed the program to counter threats to sustainability in the basin, supported by the targeting of science activities and monitoring.

7.3.41 After examining the options presented to them, however, ministers approved additional funding for only the federal activities in areas of concern. Completion of federal actions in the areas of concern will not ensure that the environmental problems will be resolved and the uses of the areas restored. That will take action by others, such as the province, municipalities, and the private sector. We believe the federal government has an obligation to ensure that such actions are taken.

7.3.42 Further, it is not clear how the federal government will meet the obligations set out in all of the annexes to the Great Lakes Water Quality Agreement. Participating federal departments are to use existing federal programs and resources for actions in the Great Lakes that are outside areas of concern. Other priorities could cause some departments in the Great Lakes 2020 program to curtail their level of involvement. There is no strategy for filling the gaps that could result.

Conclusion

7.3.43 Great Lakes 2000 was designed initially with clear roles and responsibilities and well-defined expected results. However, major budget cuts after Program Review compromised the federal participation and had an impact on departments' capacities to meet their commitments under the Canada–Ontario Agreement and the Great Lakes Water Quality Agreement. The federal government was not transparent about the consequences of budget cuts and did not produce any public report on actual federal spending under Great Lakes 2000.

7.3.44 Management practices were uneven and in many cases lacked follow-through. The renewal process leading to Great Lakes 2020 incorporated stakeholders' concerns and integrated environmental, social, and economic elements. However, since funding was approved for only federal activities in areas of concern, it is not clear that the federal government can meet its commitments under the Great Lakes Water Quality Agreement.

Our audit objectives and main findings

Holding the federal government to account

① Has the government fulfilled its commitments?

Commitments

In 1994, the Minister of the Environment committed to spend \$150 million on Great Lakes 2000 (GL2000), including \$125 million in new funds.

In the 1987 Protocol to the Great Lakes Water Quality Agreement, the federal government made commitments under 17 annexes.

Results

Only \$14.9 million of the promised new funds were actually distributed to departments. Departments had to meet their commitments under GL2000 from their existing budgets.

GL2020 funded activities only in areas of concern. It is unclear how the federal government will meet its obligations in all the annexes of the Agreement.

Our audit objectives and main findings

Assessing the government's performance

② Has the government applied good management practices?	Strengths	Weaknesses
	<p>Progress toward Canada–Ontario Agreement targets was reported every two years.</p> <p>Indicators of the state of the environment in the Great Lakes have been identified and measurement has begun, making it possible to sketch the state of the lakes.</p> <p>Stakeholder concerns were incorporated into GL2020.</p> <p>Environmental, social, and economic aspects were considered.</p> <p>Interim and end-of-program reviews were conducted.</p>	<p>Follow-through in tracking progress under GL2000 was uneven.</p> <p>There is no systematic process to take account of recommendations from internal reviews or by the International Joint Commission.</p> <p>Sharing of information and lessons learned with St. Lawrence Vision 2000 was limited.</p> <p>Co-ordination on state-of-the-environment indicators was limited.</p>
④ Has the government established good governance structures?		
	<p>Partners in the program included the seven federal departments whose involvement was essential to manage the issues addressed by GL2000.</p> <p>GL2000's initial design had clear roles and responsibilities for each federal department and well-defined expected results.</p> <p>Local implementation structures were established in a number of areas of concern.</p> <p>These structures are well equipped to involve citizens and community stakeholders in carrying out low-cost solutions.</p>	<p>The involvement of federal departments other than Environment Canada was significantly reduced following Program Review.</p> <p>The informal partnership with provincial departments was also compromised following provincial budget cuts.</p> <p>Respective roles and responsibilities of the federal and provincial departments were not clearly identified in the Canada–Ontario Agreement.</p> <p>Federal leadership is needed to ensure that the actions beyond the expertise and resources of local communities are completed.</p>

Our audit objectives and main findings

Assessing the government's performance

⑥ Has the government established good governance structures?	Strengths	Weaknesses
	<p>The Canada–Ontario Agreement progress reports summarize progress by federal and provincial agencies toward the targets in the Agreement.</p>	<p>The federal government informed the Province in broad terms about Program Review. But it did not detail the implications for the Agreement beforehand.</p> <p>Similarly, it did not clearly communicate to the International Joint Commission or to the public and Parliament the impact of federal and provincial budget cuts on the Great Lakes Water Quality Agreement.</p> <p>There was no public report on spending under GL2000. No progress report was published to inform Parliament and the public about results in the last year of the Agreement and program (1999–2000).</p> <p>Managers did not involve stakeholders in a consultative process on the Canada–Ontario Agreement as a whole.</p> <p>Canada–Ontario Agreement progress reports do not show the impact of federal and provincial efforts on the Great Lakes environment.</p>

THE INTERNATIONAL JOINT COMMISSION: A KEY BINATIONAL ORGANIZATION



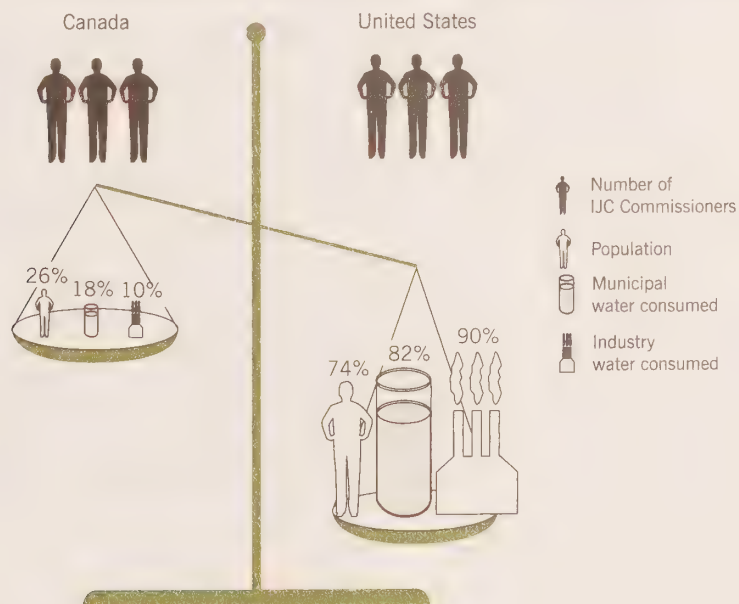
THE INTERNATIONAL JOINT COMMISSION: A KEY BINATIONAL ORGANIZATION

The issue

8.1 Established under the 1909 Boundary Waters Treaty between the United States and Canada, the International Joint Commission has an important role in protecting the shared waters of the Great Lakes. Three quarters of the population in the Great Lakes basin live on the American side. Americans account for 82 percent of the water taken from the lakes for household use and 90 percent of the water taken for industrial use.

8.2 Action by the U.S. is essential to the success of any cleanup efforts in the Great Lakes. The International Joint Commission holds both governments accountable for progress toward their commitments under the Great Lakes Water Quality Agreement. It is in Canada's interests to use the Commission and ensure that it can fulfil its role (Exhibit 8.1).

Exhibit 8.1 The International Joint Commission—Overseeing the Great Lakes



Source: Environment Canada Web site

The federal role

8.3 The Department of Foreign Affairs and International Trade is responsible for managing Canada's relations with the Commission and ensuring that Canada meets its obligations under the Boundary Waters Treaty. It shares the federal responsibility for the Great Lakes Water Quality

Agreement with the seven departments that participate in the Great Lakes program. Environment Canada is the lead department for that program.

8.4 The Great Lakes program serves to co-ordinate the federal government's efforts to meet its commitments under the Great Lakes Water Quality Agreement and respond to the recommendations made by the International Joint Commission in its biennial reports.

Our audit questions

8.5 Is the federal government meeting its commitments to the International Joint Commission under the Great Lakes Water Quality Agreement?

- Does it provide comprehensive and timely information the Commission needs to fulfil its responsibilities?
- Does it provide the Commission with appropriate technical and scientific expertise and the funds it needs to carry out its responsibilities effectively?

8.6 Does the federal government co-ordinate its activities in the International Joint Commission, the Commission for Environmental Co-operation (created under the North American Free Trade Agreement) and the Great Lakes Fishery Commission?

8.7 We did not audit the work of the International Joint Commission. We looked at the federal government's relationship with it, and the federal support for the Commission's activities in protecting the waters of the basin.

The story

8.8 The International Joint Commission is an independent body at arm's length from the governments of Canada and the United States. Its six commissioners, three from each country, are required to perform their duties impartially and in the mutual interests of both countries.

8.9 The Commission has two main responsibilities. It acts as a quasi-judicial body in approving projects that affect boundary waters and, in some cases, transboundary waters. And it makes non-binding recommendations on transboundary issues that both countries refer to it for study—known as its reference function. The Commission's February 2000 report on water uses, cited earlier in this chapter, is a component of the federal government's national strategy on bulk water removals. But the Commission conducts other important work. In 1999, for example, Canada and the United States agreed that it would study the impacts of changes in the water levels of Lake Ontario and the St. Lawrence River (see case study, Impacts of changes in water levels).

Providing information to the International Joint Commission

8.10 The Great Lakes Water Quality Agreement provides for the Commission to monitor and evaluate progress toward the objectives of the Agreement. Adding these responsibilities significantly expanded the Commission's role and established it as a "watchdog" over the public interest.

8.11 Under the Agreement, the federal government has to provide biennial progress reports to the Commission and respond to its requests for

information. Federal officials participate in boards and semi-annual meetings of the Commission and in State of the Lakes Ecosystem Conferences (SOLEC). The Commission uses the information these forums yield to evaluate and report biennially on both countries' progress toward their commitments under the Great Lakes Water Quality Agreement. The federal government is obliged to respond to recommendations in the Commissioner's biennial reports.

Impacts of changes in water levels

In October 1999 the International Joint Commission submitted a plan of study to the governments of Canada and the United States. The plan described the work required to review water levels and regulation of flow in the Lake Ontario and St. Lawrence River system.

These issues have received increased public attention in recent years because of the record-low water levels in Lake Ontario. The effects are felt downstream in the St. Lawrence River, and specifically in the Port of Montreal.

Water levels have an impact on social, economic, and environmental interests such as shipping, recreational boating, hydroelectric power generation, municipal water supplies, and riparian habitats. All of these affect the people who live and work along the shore.

According to the Commission, "The aim of the study is to determine whether it is possible to better benefit affected interests and the system as a whole in a manner that is consistent with the requirements of the Boundary Waters Treaty."

8.12 Canada has not provided enough information to the Commission.

The Great Lakes Water Quality Agreement specifies the reporting requirements for each of its 17 annexes. The Canadian government submitted its first two progress reports to the Commission in 1988 and 1990. The reports described in detail Canada's activities and progress. The information covered not only the annexes for which reports were required but all the annexes of the Agreement.

8.13 Since 1994, however, the reports of the Canada–Ontario Agreement have constituted the federal government's submission to the Commission. The past four reports have been less thorough than the first two in covering the annexes to the Agreement. They have not provided the Commission with enough information to assess Canada's progress under each annex. The 1999 progress report did feature an appendix that showed the links between the Great Lakes Water Quality Agreement annexes and the targets in the Canada–Ontario Agreement. Even with this useful cross-reference table, however, it is hard to tell where Canada has made progress and what targets it has yet to meet. This has a direct impact on the Commission's ability to perform its evaluation role.

8.14 Further, we found that even officials in the participating federal departments are not sure what activities are under way and how well Canada is keeping its commitments under the Water Quality Agreement.

8.15 The Commission has raised this problem with the federal government. And Environment Canada's management review of the Great Lakes program

acknowledged the need to improve progress reports so the Commission could better assess “how much has been achieved and what remains to be completed.”

8.16 Delays in answering requests for information. In the Water Quality Agreement, the federal government made a commitment to respond to the Commission’s direct requests for specific information. In most cases, we found that the government has taken a long time to respond to those requests; in some cases, it did not respond at all. For example, Foreign Affairs and International Trade replied promptly to a question about the impact of proposed reductions in federal research programs. However, the federal and provincial governments took almost three years to reply to a similar question about how federal and provincial budget cuts would affect their ability to meet their obligations under the Water Quality Agreement (Exhibit 8.2). Such delays could impair the Commission’s ability to protect the public interest.

Exhibit 8.2 Delays in explaining the impacts of budget cuts

October 1996	The Commission met with representatives of Canada and Ontario and asked how budget cuts would affect their ability to meet their obligations under the Great Lakes Water Quality Agreement. No response was provided.
March 1997	The Commission sent the two governments a letter repeating its request.
October 1997	At a semi-annual meeting with the Commission, a federal official said the information would be sent later that fall. It was not.
June 1998	In its 9th biennial report, the Commission reminded the federal and provincial governments that it had not received the information it wanted.
August 1999	The federal and provincial governments informed the Commission by letter that they were still committed to rehabilitate, protect, and conserve the Great Lakes basin ecosystem. The letter also said that while they would not meet some targets in the Canada–Ontario Agreement on schedule, they would meet the majority and would make significant progress toward others.

Providing technical expertise

8.17 Active participation of federal officials. To fulfil its quasi-judicial role and its reference function, the Commission relies on the expertise of federal officials, acting in their personal and professional capacities and not as representatives of their governments. Their participation is important, for several reasons. First, the information and expertise they provide enable the Commission to adequately consider Canadian concerns along the border. Second, in participating, federal officials benefit from U.S. scientific expertise and capability. Third, federal officials can help departments reach consensus and agreement on the Commission’s recommendations.

8.18 Over the years, officials of Environment Canada, Fisheries and Oceans, Transport Canada, Health Canada, and other federal departments have been active on the Commission's advisory boards, boards of control, and reference study teams.

8.19 Participation now at risk. Program Review led to large cuts in departmental programs and the loss of scientific and technical capabilities. Further, the February 2000 Budget announced significantly lower funding than the Great Lakes 2020 program had requested. This will likely limit the support that departments can provide to the Commission.

8.20 In our opinion, reduced federal involvement on boards and reference study teams could undermine the federal government's efforts to ensure that Canadian interests in the Great Lakes basin are protected and the ecosystem is managed effectively.

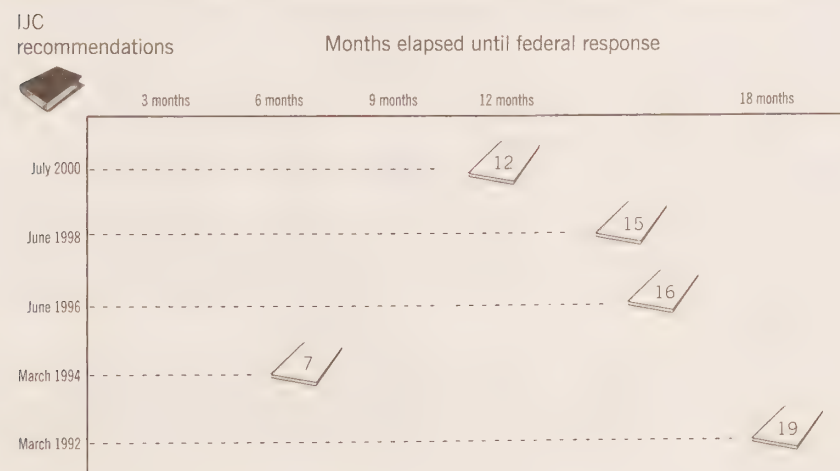
Limited consideration of the Commission's recommendations

8.21 Under the Great Lakes Water Quality Agreement, the federal government is required to consider the Commission's recommendations. The government has to respond formally to each recommendation, though it may decide what action it will take, if any.

8.22 We found that Environment Canada has consulted the appropriate federal and provincial agencies about the Commission's recommendations. However, the federal responses were not always comprehensive and were often delayed (Exhibit 8.3). We found no evidence that federal officials had considered the implications of accepting the recommendations, assessed the resources required to implement them, or evaluated their impact on existing federal objectives or federal programs.

8.23 Further, the government has not established formal follow-up procedures to ensure that it completes the actions it identifies in its response. Instead, follow-up is ad hoc and action is left to the person who prepares the response.

Exhibit 8.3 Delays in federal response to the International Joint Commission's recommendations



8.24 The lack of careful consideration and follow-up of the Commission's recommendations undermines the government's credibility and the Commission's ability to fulfil its mandate. And there are potential implications for the health of the Great Lakes when the federal government does not act quickly on identified threats to the environment or when it delays its response.

8.25 Four references to the Commission since 1997 directly concerned federal programs in the Great Lakes. We found that the federal government paid more attention to the recommendations in the Commission's reference reports than to those in its biennial reports. But we still saw similar weaknesses—delays, and no follow-up to ensure that the federal government did what it had said it would do in its response.

Funding the International Joint Commission

8.26 Delays and uncertainty. The Canadian and U.S. governments share the funding of the Commission. Foreign Affairs and International Trade is responsible for finding the money to fund Canada's share of reference studies, but it has no established way of doing this. Funds have been provided ad hoc, either by the Treasury Board or from the regular budgets of the federal departments involved. Those departments have covered part of the costs by providing professional services or in-kind support—such as office space—for the studies.

8.27 Program Review and budget cuts in federal departments have reduced their ability to fund reference studies. Federal officials, including senior management, must search for funds each time a new reference is approved—often after the reference is given to the Commission. There is no prior planning. Delays cause complications for the Canadian section of the Commission, particularly if the U.S. has provided funds and the U.S. section has begun its part of the study.

8.28 The growing number and importance of references to the Commission by the Canadian and U.S. governments since 1997 suggests that the federal government is renewing its commitment and using the Commission more frequently. Over the next five years, in addition to the \$12 million study of water levels, the governments expect to make seven new references with a total cost of roughly \$9 million. However, the current ad hoc approach to funding references puts at risk Canada's ability to defend its rights and meet its obligations under the Boundary Waters Treaty.

Ensuring a consistent federal approach

8.29 In addition to the International Joint Commission, there are two other important international institutions whose mandates cover the Great Lakes: the Great Lakes Fishery Commission and the Commission for Environmental Co-operation.

8.30 The Commission for Environmental Co-operation (created under the North American Free Trade Agreement) has authority to consider transboundary and border issues. So there is some potential for overlap between its activities and those of the International Joint Commission. Both

organizations, for instance, are active in controlling toxic chemicals. The International Joint Commission has several times brought its concern about overlap to the attention of federal officials in Foreign Affairs and International Trade as well as Environment Canada. The four-year review of the North American Agreement for Environmental Co-operation raised the same issue with the federal government in June 1998.

8.31 We found that co-operation between the two commissions has been limited to ad hoc activities—discussions between staff, for example, and some joint work on air quality problems. The federal government has not fostered systematic collaboration in scientific and technical activities such as data collection and inventories, which could benefit both commissions.

8.32 The International Joint Commission and the Great Lakes Fishery Commission have collaborated on invasive species, and they share information on a regular basis. However, there is no formal venue for tackling issues of common concern to both.

Conclusion

8.33 The federal government has not provided the International Joint Commission with enough information to properly assess Canada's progress under the Great Lakes Water Quality Agreement. It has delayed answering the Commission's requests for information and responding to its recommendations. The federal government does no formal follow-up to ensure that it will complete the actions it identifies in its responses to the Commission's recommendations.

8.34 Over the years, federal officials have provided technical expertise to the Commission's boards and study teams. However, the loss of scientific and technical capabilities as a result of budget cuts is putting this support at risk. Finally, the government has delayed its share of funding for the Commission's reference studies.

What we recommend

8.35 Our findings show that the federal government needs to provide better and more timely information to the International Joint Commission, follow up on its recommendations, and ensure that resources are adequate.

8.36 The federal government, through the Department of Foreign Affairs and International Trade and with the support of Environment Canada and all other federal departments participating in the Great Lakes ecosystem program, and other partners as required, should comprehensively review Canada's progress under the Great Lakes Water Quality Agreement and report this to the International Joint Commission as the Agreement requires.

8.37 The Department of Foreign Affairs and International Trade should establish a formal means to ensure the systematic consideration and follow-up of the Commission's recommendations.

8.38 Before the Department of Foreign Affairs and International Trade refers an issue to the Commission, it should ensure that the federal government can deliver the needed funds without delay.

(See Summary for departmental responses.)

Our audit objectives and main findings

Holding the federal government to account

❶ Has the government fulfilled its commitments?	Commitments	Results
	Provide data and other information to the International Joint Commission (IJC) in progress reports; and respond to specific information requests.	In the last progress reports, the federal government did not provide the IJC with enough information to assess Canada's progress under the Great Lakes Water Quality Agreement.
	Provide technical and scientific expertise through representation on IJC advisory boards and boards of control.	The government has delayed answering IJC requests for information.
	Consult on the recommendations contained in all IJC reports and consider actions as may be appropriate.	Active participation of federal officials in past years is now at risk because of reductions in resources and scientific capacity.
	Provide the funds to allow the IJC to carry out its responsibilities effectively.	The government has given only limited consideration to IJC recommendations. Relevant federal officials were consulted on the recommendations, but federal responses were often delayed and not always comprehensive. There was no follow-up process to ensure that the actions proposed in the response were implemented. Provision of funding for IJC references has been slow and uncertain.

Assessing the government's performance

❷ Has the government applied good management practices?	Strengths	Weaknesses
	There have been discussions between the IJC and the Commission for Environmental Cooperation (CEC) and some joint work on air quality issues.	There is no systematic collaboration between the IJC and CEC on scientific and technical work that could benefit both organizations.
	The IJC and the Great Lakes Fishery Commission (GLFC) have collaborated on invasive species. There is good transfer of information between the two organizations.	There is no formal venue for tackling issues of common concern to the IJC and GLFC.

OVERALL CONCLUSIONS



OVERALL CONCLUSIONS

The trip began long ago

9.1 Charting and navigating a sustainable course through the Great Lakes and St. Lawrence River basin presents a formidable challenge to governments in Canada. The lakes and river themselves are immense, spanning thousands of kilometres and hundreds of communities. The legal and jurisdictional setting is complex: two federal governments, several provinces and states, international and regional organizations, and local municipalities. Finally, the range of issues and threats confronting the basin is daunting, as is the need to develop and align policies and programs in response.

9.2 There is a long history of federal environmental programs in the basin. Over many decades, the state of the basin and the performance of governments have been the subject of intense study and debate, especially the Great Lakes portion. A diverse range of stakeholders, including international institutions, academics, scientists, industry, environmentalists, labour, and First Nations, have produced hundreds of reports containing hundreds more recommendations.

9.3 These stakeholders have persistently called for more leadership, action, and progress in tackling releases of toxic substances and controlling other pollution, treating contaminated sediment, mapping groundwater, protecting habitats and maintaining biodiversity, planning land use and controlling urban sprawl, and preventing the introduction of invasive species.

9.4 Our Office, too, has conducted a number of audits and studies of matters that bear on sustainable development in the Great Lakes and St. Lawrence River basin. Appendix A describes them and some of our findings.

9.5 In our current audit, we wanted to see how the federal government has managed major threats to the environment in the Great Lakes and St. Lawrence River basin. We learned that this is not a single story but hundreds of stories, some told over many generations. They are as rich and diverse as the basin itself. They are played out in community halls and church basements, in corporate boardrooms and on shop floors, on farms and on fishing boats, in national parks and natural landscapes, in laboratories and research vessels, in state and provincial capitals, and at the federal Cabinet table. Part of every story are the people who share an interest in keeping our lakes, rivers, air, and land healthy.

9.6 What do these stories add up to? What progress has been made? What is the current state of the Great Lakes and St. Lawrence River basin? What role does the federal government play in protecting and preserving this key ecosystem, and how is it performing in that role? How can it do better and advance the sustainable development of the basin for generations to come?

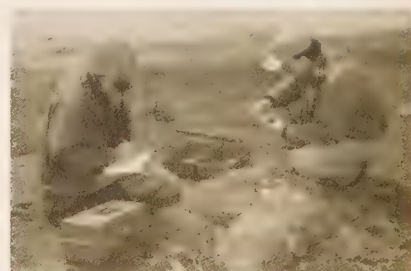
These questions have no single or simple answers. Many of them are discussed in detail earlier in this chapter. The purpose of this section is to summarize key findings, highlight common patterns, and tell Parliament what we consider to be matters of special importance.

The trip so far: Remarkable achievements

9.7 Historically, the basin has seen remarkable achievements and has been the genesis of many innovations. We identified several strengths in federal activities and specific areas of progress:

- A complex infrastructure of institutions, legislation, policies, and programs has been developed.
- Agreements have been negotiated, partnerships forged, and communities mobilized.
- Our scientific understanding of the threats facing the basin and of ecosystems in general has increased.
- Amounts of some chemical and biological contaminants entering the air, waters, and land have been reduced.
- Lake Erie, once considered “dead,” has been revived.
- Some threatened species and some fish populations are recovering.
- Some wetlands and landscapes have been restored and protected.
- Soil losses have slowed, in part as conservation tillage has become widespread.
- Amounts of active ingredients used in pesticides have declined, especially in Ontario.

9.8 While it is difficult to say precisely what the federal government has contributed to this progress, it deserves credit for its positive influence. Federal officials, scientists, and others have demonstrated significant leadership and dedication. In some cases, the federal contribution is directly observable—developing policies, negotiating agreements, funding projects, and assisting communities. In other cases it is less obvious, in part because many other organizations and individuals also play a role.



Many people are involved in protecting the basin.

The state of the basin

The lakes and rivers are deteriorating

9.9 What is the current state of the basin? There are many points of view. Looking back, the Great Lakes and the St. Lawrence River have shown significant improvement and, by some measures, are cleaner than ever. Compared with other international watersheds, many believe the basin is in good shape.

9.10 However, today's best science also describes a Great Lakes and St. Lawrence River basin under tremendous and growing pressure and changing in fundamental ways that are not fully understood. Some aspects of the basin are improving; others are deteriorating before our eyes. As Section 2 of this chapter notes, governments and scientists have assessed the overall condition of the lakes and river as "mixed" or "mixed deteriorating."

Federal role and performance: Key findings and concerns

9.11 This chapter has discussed in some detail the role and performance of the federal government. Each subsection summarizes our audit objectives and findings and notes the extent to which the government has fulfilled its commitments. We also identify both strengths and weaknesses in its management practices and governance structures. Exhibit 9.1 summarizes at a higher level the weaknesses of the government's approach as well as strengths that provide a good foundation for future efforts

9.12 As challenging as the past has been, the future will be a far greater challenge. We have come through relatively still waters compared with the whitewater rapids we are quickly approaching. With this in mind, we highlight below our major concerns.

Important matters left to drift

9.13 The federal government is generally aware of the threats the basin faces, now and in the future. Over time, it has responded with hundreds of commitments to Canadians, in many forms. Some are grounded in international agreements or federal legislation, or stated in government policies. Others originate in departments' sustainable development strategies, ministers' speeches, and government responses to various reports. In each of the subject areas and issues we examined, we set out to determine whether the federal government was doing what it had said it would do. Was it meeting its commitments to Canadians?

9.14 **It is not always clear what the government stands for.** Overall, we have serious concerns about the lack of transparency and clarity of the government's commitments and priorities. Many of the commitments are stated in vague and general terms that cannot be measured—for example, the government's commitment in the National Accord for the Protection of Species at Risk to implement recovery strategies "in a timely fashion." Other commitments are outdated—though they still exist on paper, in practice they have long since been abandoned. For example, Environment Canada and other departments view several annexes to the Great Lakes Water Quality Agreement as no longer relevant.

9.15 Commitments not met, policies not implemented. Our audit found that the federal government's record of meeting its commitments is mixed. Some have been met, but many key ones have not. The pace of progress in many respects is slow. In some cases, this lack of progress is not news: the government itself has reported it. Prime examples include restoring areas of concern, developing lakewide management plans, performing needed fisheries habitat management, conducting studies of human health, and passing federal species-at-risk legislation. Many key initiatives have been started but not completed: the Canada-Ontario Agreement; the federal-provincial accord on bulk water removals; fish habitat renewal. Faced with multiple priorities and greatly diminished funding, departments are spreading their efforts thin.

Exhibit 9.1 Holding the federal government to account

Area	Strengths	Weaknesses
Planning	<p>Developed a good understanding of many threats facing the basin.</p> <p>Established plans and identified priorities for many issues.</p>	<p>Many commitments and priorities to deal with key threats to the basin's sustainability are general and vague, and results are difficult to measure.</p> <p>Many specific long-term outcomes desired for the basin have not been identified, and related plans have not been developed.</p> <p>Funding has declined, is unstable, and is insufficient to meet all commitments.</p>
Using tools	<p>Developed and implemented a range of tools to address specific issues in the basin.</p>	<p>Only some tools in the federal tool box are being used.</p> <p>Whether the tools used are sufficient to manage threats to the basin has not been assessed.</p> <p>A consistent, co-ordinated basin-wide approach to issues that span the basin is lacking.</p> <p>Federal science activity is weakened. There are significant gaps in scientific knowledge needed to understand and manage threats to the basin.</p>
Working with others	<p>Established effective partnerships at the local, provincial, federal, and international levels.</p> <p>Engaged local citizens.</p>	<p>Roles and responsibilities—who is responsible for what—are often unclear.</p> <p>Accountability arrangements with partners to make sure federal objectives are met are weak.</p>
Getting results	<p>Achieved gains in several areas.</p>	<p>Many key commitments have not been met; many key initiatives have not been completed; departments are spreading their efforts thin.</p>
Monitoring and reporting	<p>Collected and disseminated information on a variety of topics.</p> <p>Developed some environmental indicators.</p> <p>Developed some indicators for measuring performance.</p>	<p>Data gathered to understand the nature and trends of key threats to the basin are insufficient and inconsistent.</p> <p>Development of indicators of the state of the Great Lakes and the St. Lawrence River is unco-ordinated.</p> <p>How federal activities have improved the basin's sustainability has not been analyzed or demonstrated.</p> <p>Information to Parliament and others does not afford a clear understanding of federal progress.</p>

9.16 Too many priorities for the resources given. The impacts of declining and unstable funding are too clear to ignore (see Federal government spending in the basin). As we describe in our observations on St. Lawrence Vision 2000 (Subsection 7.2) and Great Lakes 2000 (Subsection 7.3), funding cuts made it hard for departments to meet their obligations. This was especially obvious in Great Lakes 2000—much of the promised funding never arrived and existing budgets were slashed. The carefully developed plan of action unravelled as departments simply withdrew from the program. St. Lawrence Vision 2000 also suffered some cuts, but not as large as those in the Great Lakes 2000 program.

Federal government spending in the basin

- Percentage of Great Lakes science funding by Fisheries and Oceans cut since 1993: **30**
- Percentage reduction in federal soil science staff in Ontario, Quebec, and the Atlantic provinces: **88**
- Number of Fisheries and Oceans staff in Quebec with expertise in fresh water: **0**
number needed to do the required work: **14**
- Percentage of the financial commitment to St. Lawrence Vision 2000 Phase II that was received by departments: **84**
- Percentage of the funds announced by the Ministère of the Environment for Great Lakes 2000 that departments received: **12**
- Percentage decrease in federal funding to reduce environmental effects of agriculture, 1993–94 to 1997–98: **75**
- Total operating and maintenance budget for the 56 national wildlife areas and migratory bird sanctuaries in Ontario and Quebec in 1999–2000: **\$185,000**

9.17 Cuts in federal budgets affected programming outside the ecosystem programs, too. For example, federal soil databases are out-of-date. Scientific research has fallen below the level needed to support the federal mandate for freshwater fisheries. National wildlife areas, which are federally owned, are threatened by the lack of funds to maintain them. It is not clear that new funding for species at risk is adequate to complete the job that the federal government needs to do.

9.18 Although the federal government has been successful with its agenda of deficit reduction, our audit found many significant gaps between the commitments it has made and the resources it has allocated to meeting them. Clearly, federal commitments are out of step with the resources given; one or the other needs to change.

9.19 But diminished funding is not the only reason why the government is not meeting key commitments. The limited use of federal powers, weaknesses in basic management and accountability, and the politics of federal–provincial relations have all played a part. The role of each department participating in the 1987 Federal Water Policy has never been established. Recent attempts to develop a new federal strategy for fresh water lack

direction, and so have stalled. Fisheries and Oceans has been unable to define clearly its role in managing freshwater fisheries.

9.20 Reporting to Parliament and others. Our audit found several examples of incomplete reporting to the public, international organizations (such as the International Joint Commission), and parliamentarians. Information needs to improve significantly on a variety of fronts, including budgetary allocations and expenditures, progress made toward specific commitments, and the state of the basin. Integrated reporting of this information could be valuable.

No federal strategies for key issues

9.21 Many of the threats to the basin today have been present for decades, and many of the pressures will not go away; people place demands on their environment. Past experience demonstrates the need for constant vigilance, a long-term view, sustained actions, research and monitoring, and stable funding in line with commitments. Much of this is missing from federal programming.

9.22 Instead, we found a short-term approach to most of the issues on the agenda. The government takes incremental steps to demonstrate its forward momentum—a bit more research, another study, a new regulation, another species recovery plan. These are all necessary actions, but it is hard for Canadians to know where they are all heading, what ends they are meant to achieve. Many programs we looked at do not take a long-term view of the issues: cleaning up contaminated sediment, delisting areas of concern, managing exports of our water, preventing the introduction of invasive species, dealing with intensive production of livestock. For example, Agriculture and Agri-Food Canada is committed to sustainable agriculture, a noble if broadly defined goal, but there are some critical gaps in the Department's plan for achieving it.

9.23 We do not suggest that the government can develop an all-encompassing solution that will end the need for action; for some problems, that kind of solution cannot be found. We do suggest the need for a long-term plan for living within the carrying capacity of the ecosystem—a plan with a sense of vision, concrete steps, clearly defined roles, dedicated resources, and follow-through. Today, even where the federal government's commitment to a specific activity or result is clear, its long-term role and those of its partners in managing the issue are not always so clear.

9.24 A basin-wide perspective. The Great Lakes and the St. Lawrence River form a single hydrologic basin whose natural boundaries defy political distinctions. The federal government is uniquely positioned to identify broad threats and select priorities from a basin-wide perspective, but it has not done so. On key issues there is no co-ordinated and consistent federal voice in the two regions. The regional ecosystem programs are relatively isolated from one another.

9.25 The priorities of the Great Lakes ecosystem program were driven in large part by Canada's obligations under the Great Lakes Water Quality Agreement between Canada and the U.S. The priorities and shape of federal programs and the companion Canada–Ontario Agreement have evolved over time, with changes to the Agreement. The requirement to develop a lakewide management plan for each of the Great Lakes was an attempt to take a broad look at the key threats facing the lakes and adjust programming priorities accordingly. As we note in Subsection 3.6, this has been a slow process, and ineffective so far.

9.26 Developing priorities in the St. Lawrence ecosystem program has been relatively free of similar outside forces. There is no obligation for program managers to develop river-wide plans and priorities, and they do not. Instead the selection of issues, while guided by an assessment of key threats, is based largely on existing programs of the federal and the provincial governments.

9.27 Officials of both ecosystem programs have identified four activities that could be integrated better to benefit the environment: control of toxic substances, monitoring of water levels, technologies for cleaning up contaminated sediments, and development of indicators of the state of the environment.

Scientific research, monitoring, and measurement systems are impaired

9.28 *If we meander off course, will anybody know?* One species lost, soil washed from one farm, untreated effluent from one city, one more wetland lost, one invasive species altering the ecosystem, a stretch of shoreline eroded—each alone may not be a crisis. But their cumulative impact on the basin is what concerns many scientists.

9.29 Our ability to detect and measure changes in the environment has a direct bearing on the quality of the decisions we make. Good scientific information is needed to understand the basic functioning of ecosystems. And further, it is needed to determine how effective past actions have been and to identify emerging trends and issues that may warrant future action.

9.30 Several of our audits in the past have pointed to problems in the government's ability to conduct needed scientific research and monitoring. Our work on biodiversity, climate change, toxic substances, and urban smog have reached similar conclusions. Despite repeated assertions by the government that it will provide scientific leadership to support decisions, our present audit reached the same conclusion: there are major gaps in essential information.

9.31 This isn't news. Several reports and reviews by the International Joint Commission, the State of the Lakes Ecosystem Conferences (SOLEC), scientific research organizations, and the government's own publications (such as the 2001 interim report of the Task Force on a Canadian Environmental Information System) have identified and lamented the weakened state of federal science. Indeed, most scientific assessments of the state of the basin are qualified by a note on the incomplete and inconsistent

data that support them. Cuts in funding for scientific research and monitoring have made an already bad situation worse.

9.32 Indicators are part of the solution, but co-ordination is needed. Part of the scientific challenge is to identify what we need measured. This is behind the recent drive to develop basic indicators of environmental health and sustainable development in the basin and in other parts of Canada—indeed, around the world. As we note earlier in this chapter, even after years of activity and progress in certain areas, a lot of this work is still in its formative stages. We are concerned about the lack of progress.

9.33 But we are more concerned that the federal government lacks a uniform approach. Separate activities are under way in the Great Lakes and the St. Lawrence River ecosystem programs. Though their challenges are basically the same, each program is “doing its own thing,” with not enough co-ordination between them.

Did you know?

- Number of years it took to develop the first agri-environmental indicators: **7**
- Of the 80 indicators proposed by the State of the Lakes Ecosystem Conferences, number not yet reported on: **47**
- Of the 15 indicators reported for the state of the St. Lawrence River, number for which no data are available: **2**
- Number of years since some Ontario counties last had a soil survey: **over 40**
- Of the 258 chemicals in the National Pollutant Release Inventory that are found in Quebec and Ontario waters, number that are monitored in the basin: **fewer than half**
- Amount of groundwater on the Canadian side of the basin: **unknown**
- Amount of fish habitat lost or gained in the basin: **unknown**
- Number of reports that summarize results of federally supported stewardship activities: **0**

9.34 Basic measurement is missing. Not enough information is collected for the public and the government to know whether the state of the basin is getting better or worse overall. Data collected on wetlands by different organizations are inconsistent, incomplete, and largely out-of-date. Population trends are known for less than half the species at risk in the basin that are under federal jurisdiction. Whether there are net gains or losses of fish habitat is not known. There is not enough information to say whether the federal government is meeting its objective of conserving and protecting fish in the basin for their sustainable use. Soil information is becoming outdated, and the human resources to support research on soil properties have dropped. Most critically, the federal government has trouble demonstrating the links between its activities and actions and their impacts on the state of the basin.

9.35 A long way to go to understand how ecosystems work. In the latter part of the 20th century, science ushered in a new awareness of how different components of natural environments relate to each other. Leading-edge science by Canadians and others substantially improved our understanding of how aquatic and terrestrial ecosystems function. This understanding helped in developing science-based solutions such as controls on phosphorus and persistent pesticides. But today, when basic science is needed more than ever—to understand, for example, the significance and implications of climate change, endocrine disruption, and genetic diversity—it is being eroded. In some areas, such as groundwater and fish habitat, basic mapping is fragmented and incomplete because of years of indecision and uncertainty inside the federal government over who is responsible for what. In still other areas, such as fisheries, the government has not clarified what science it needs.

The changing and waning federal role

9.36 Concerted actions by many governments, industries, and individuals are required to manage sustainability in the basin. The federal government cannot be expected to do it all. But it should be expected to focus on its

distinct role, to be explicit and open about what it is accountable for, and to use the various tools and authorities at its disposal.

9.37 The federal role is limited, in part, by constitutional constraints. But the government has chosen to limit its role further. It is not using the legislative powers and tools it could use. In the past few decades, especially the last one, the federal government's role changed and it retreated from many areas where it once was active. It is shifting the emphasis from leading to facilitating, from deciding to consulting, from acting to studying, from intervening directly to relying on others.

9.38 The growing reliance on partnerships: More work to be done. The importance of making and maintaining links is a recurring theme in the work of our Office. Links are needed between the federal government and other players in the basin and among federal departments and programs.

9.39 In the Great Lakes and St. Lawrence River basin, the federal government has worked hard to make the needed links with outside partners, both domestic and international. Many effective partnerships are now in place. But this in turn has raised fundamental questions about the federal government's role in overseeing its partners' actions and providing assurance that federal and national objectives are being met. These questions are illustrated well in Fisheries and Oceans' relationships with the provinces in managing the fisheries, protecting fish habitat, and meeting the requirements of the Great Lakes Water Quality Agreement.

9.40 There is a need for fuller engagement by all departments active in the basin. The federal government has more to do to forge internal links. Although it has made significant progress in recognizing the relationships between individual issues and programs, it has yet to truly integrate or cross-link them. Programs are still fragmented and compartmentalized. Though federal departments acknowledge the need for a concerted effort to manage "horizontal" issues, in our opinion there is a prevailing sentiment that protecting the basin is primarily up to Environment Canada.

9.41 Tackling the tough issues: Where the government fears to tread. Principles such as "the polluter pays," the "precautionary principle," "prevention vs. remediation," and "pollution prevention" are common themes the federal government articulates in many of its important plans and policies. It leaves the impression that it is committed to doing all of these things. But is it doing them? Is it using the tools it has to ensure that the job gets done?

9.42 Our audit found in many cases that the federal government was not fully exercising its legislative authorities. Pollution prevention sections of the *Fisheries Act* have been effective in controlling and preventing the entry of industrial effluents into the basin's waters. Yet in some areas, the government continues to allow the dumping of poorly treated sewage directly into the same waterways. Although it has at its disposal a legislative tool for corrective action, it has chosen not to use it. The enabling powers of the *Canada Water Act* to provide more consistent planning and protection have been largely unused.

9.43 The federal government has the power to regulate all aspects of the agriculture industry. Canadians are concerned about the impact that agricultural development could have on our environment, and particularly on our water quality. As we note in our observations on manure and fertilizer management, the number of hogs per farm in the basin has grown by almost 2,500 percent in the last 35 years, feeding growing concerns about industrial farming practices. The federal government has yet to take sufficient action to make agriculture environmentally sustainable.

9.44 Where it does use legislative tools, the government is not looking at how different programs interact—how different economic and environmental policies and programs could support and complement each other more effectively. Farm income support programs have potentially adverse effects on the environment, but the federal government's understanding of those effects is limited. Similarly, the federal infrastructure program is not tied to its policy of promoting realistic water pricing. In not making those ties, the government is missing an opportunity to influence water consumption and quality.

9.45 In other respects, the federal government has not yet equipped itself with the scientific or policy tools to do the job. Contamination of sediments from years of industrial pollution in the basin has yet to be addressed. Even where the polluter is known, federal legislation provides little remedy. And who will pay for the many “orphan” sites in the basin, those for which a responsible party cannot be found?

9.46 Exotic invasive species continue to enter the basin and wreak havoc on its ecosystem. Canada has only voluntary guidelines to deal with this. We depend on U.S. regulations to control invasive species, but those regulations alone have not prevented the problem, particularly in the St. Lawrence River. Canadians are also concerned that the safety of their drinking water is at risk where provinces and municipalities do not follow national guidelines. Has the time come for the federal government to evaluate the need for nationally enforceable standards?

9.47 The federal government's inaction on many of the issues our audit raised begs the fundamental question, What is its role? What is the value of making domestic and international commitments when, in some cases, there is no capacity to deliver?

9.48 When the federal government signed the Great Lakes Water Quality Agreement, for example, it assumed an obligation to ensure that action would be taken. The government decided to rely on others, and when others failed to deliver, it did not assume the lead. In our view, the federal government remains accountable for its obligation to ensure that the job gets done. The time has come for it to either take responsibility for its commitments or change them.

The future: Charting a course for sustainability

9.49 That the basin is a critical resource for Canadians is beyond dispute. That it is subject to ongoing, growing, and changing threats and pressures is

also beyond dispute. But is there an environmental crisis in the basin? That is largely a matter of perspective.

9.50 At one level, the state of the lakes and rivers—especially compared with other threatened watersheds around the world—is a testament to the determination and ability of Canadians and Americans to manage the basin for the future. Governments have built an elaborate array of important institutions, laws, and programs designed to manage the present and safeguard the future. Past experience offers evidence of our ability to resolve crises as they appear.

9.51 Other perspectives show a different view. The leadership, innovation, science, and diligence that served the basin in the past have diminished. There is a sense of complacency, not urgency; resignation, not inspiration.

9.52 The basin our children will inherit will be much different from today's. Part of the challenge of sustainable development is to ensure that their future is secure. In our view, the federal government is not keeping pace with future needs. While achieving sustainability in the basin is not up to the federal government alone—actions are needed by many other governments and organizations—it does have a crucial and distinct role to play. We look to the federal government, as the leader of this trip, to chart the destination and course (vision, policies and plans), properly map the approaching rapids and obstacles (robust science and monitoring), obtain the right equipment (policy instruments and integrated programs) and, working together and with partners, mobilize the expertise and teamwork it needs.

How the federal government can do better

9.53 In addition to the recommendations made in preceding sections, we believe that at a higher level, the following are things that the federal government can do better.

- Provide clear-cut federal commitments to deal with key threats to the basin's sustainability.
- Adequately fund its commitments.
- Articulate the long-term outcomes it seeks for the basin, translating them into concrete plans that drive its actions.
- Apply a consistent basin-wide approach, where appropriate, for issues that span the entire basin.
- Reassess whether the legislative and other tools it uses are sufficient to manage threats to the basin.
- Rebuild or acquire the scientific knowledge needed to understand and manage threats to the basin.
- Set-up consistent data gathering to understand the nature and trends in key threats to the basin.
- Analyze and demonstrate how federal activities have improved the basin's sustainability.
- Strengthen accountability arrangements with partners to make sure federal objectives are met.



- Clarify responsibilities within the federal government about who is responsible for what.
- Report information to Parliament and others that provides a clear understanding of federal progress.

(See Summary for the joint interdepartmental response.)

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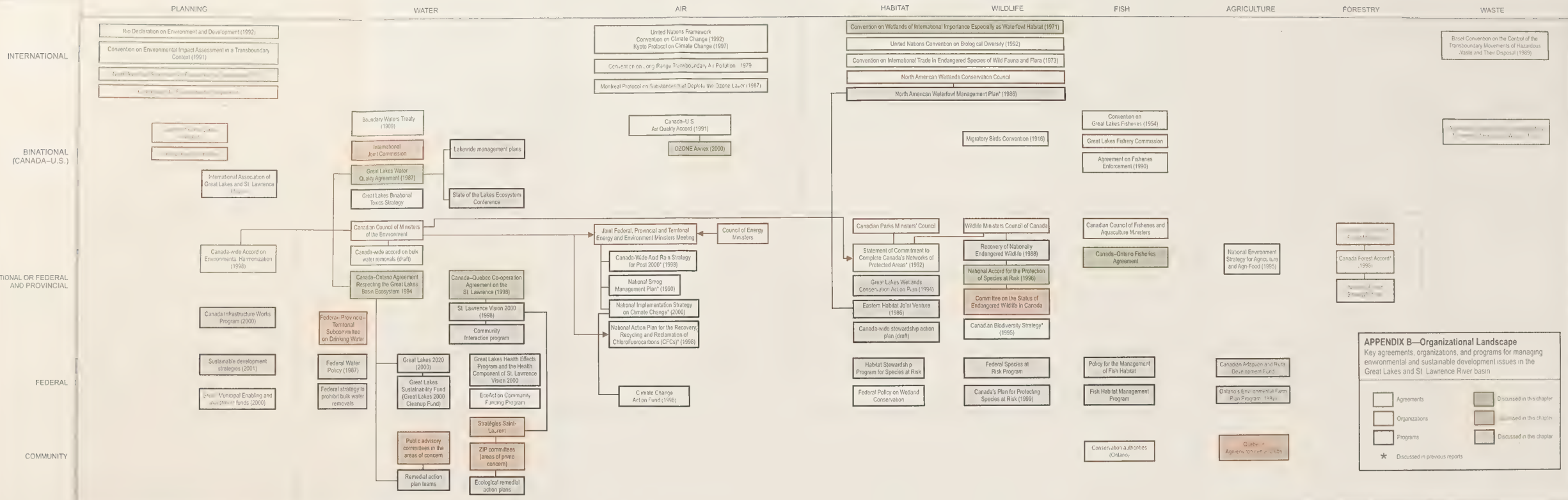
Appendix A—Previous Work of the Office of the Auditor General and the Commissioner of the Environment and Sustainable Development

Our Office has conducted numerous audits and studies of matters that bear on sustainable development in the Great Lakes and St. Lawrence River basin. The following are some of the issues we examined and our main findings:

- **Climate change** is considered one of the greatest threats to the integrity of the basin. Chapter 3 of the Commissioner's 1998 Report (Responding to Climate Change—Time to Rethink Canada's Implementation Strategy) found that Canada was not expected to meet long-standing domestic and international commitments to stabilize greenhouse gas emissions. We attributed this failure primarily to poor planning and ineffective management. We update our work in Chapter 6 of this report.
- **Urban smog** is a serious form of air pollution for many Canadians living in the Windsor–Quebec corridor. Chapter 4 (Smog: Our Health at Risk) of the Commissioner's 2000 Report found that while federal and provincial governments had set sound strategic direction through development of a national plan, the plan was destined to fail: governments and their partners never reached agreement on how to implement it.
- **Toxic substances** such as industrial chemicals, pesticides, and waste byproducts are a major cause of pollution in our lakes, rivers, air, and land. Chapter 3 (Understanding the Risks from Toxic Substances: Cracks in the Foundation of the Federal House) and Chapter 4 (Managing the Risks of Toxic Substances: Obstacles to Progress) of the Commissioner's 1999 Report raised concerns about the weakened state of scientific research and environmental monitoring, the slow progress in reducing releases of toxic substances into the environment, the government's growing reliance on voluntary controls of high-priority substances, the lack of a pesticide risk reduction strategy, and the sometimes divisive relations among federal departments.
- **Federal contaminated sites** pose a risk to the public in the release of harmful substances. Chapter 22 (Federal Contaminated Sites—Management Information on Environmental Costs and Liabilities) of the Auditor General's November 1996 Report, and our subsequent follow-up work, heavily criticized the government for its failure to identify and characterize—let alone remediate—hundreds of federally owned contaminated properties in Canada, many of them in the basin. The government still does not have a consolidated cleanup plan for its sites.
- **Loss of biodiversity** relates to the protection of species and spaces at risk. Chapter 4 (Canada's Biodiversity Clock Is Ticking) of the Commissioner's 1998 Report raised concern about slow progress in acting on the Canadian Biodiversity Strategy and cited the need for a more cohesive federal implementation plan.
- **Transboundary hazardous waste** was the subject of an audit that assessed whether the federal government had an effective regime for controlling its transport. Chapter 4 (Control of the Transboundary Movement of Hazardous Waste) of the Auditor General's April 1997 Report pointed to significant deficiencies in the enforcement of federal laws.
- **Ozone layer protection** reviewed the government's progress in dealing with this global environmental threat. In Chapter 27 (Ozone Layer Protection: The Unfinished Journey) of the Auditor General's December 1997 Report, as well as in Chapter 2 (Working Globally—Canada's International Environmental Commitments) of the Commissioner's 1998 Report, we credited the federal government for its leadership in implementing controls on ozone-depleting substances and meeting its international commitments. We also flagged the importance of maintaining a long-term perspective and focussing future efforts where they mattered the most.
- **Environmental assessment** is a key tool for preventing environmental harm caused by various projects. Chapter 6 (Environmental Assessment—A Critical Tool for Sustainable Development) of the Commissioner's 1998 Report found significant weaknesses in implementing the *Canadian Environmental Assessment Act* and a lack of rigorous assessments under the *Fisheries Act* (related to fish habitat). We also found poor compliance with the 1990 Cabinet directive that required departments to assess the environmental effects of federal policy and program initiatives submitted for Cabinet's consideration.
- **Tracking compliance with international agreements** is critical to the environment and to Canada's reputation. Chapter 2 (Working Globally—Canada's International Environmental Commitments) of the Commissioner's 1998

Report found that Canada does not systematically track implementation of the nearly 230 international environmental agreements and instruments that it is party to or has endorsed.

- **Freshwater pollution** in the Great Lakes, the St. Lawrence River and the Fraser River and along the Atlantic Coast was an audit subject in the past. Chapter 14 (The Control and Clean-up of Freshwater Pollution) of the Auditor General's 1993 Report, as well as follow-up recommendations in the 1995 Report, found that action plans for the management of water quality needed more attention from the federal government. The need for a federal framework of water quality objectives and for federal long-term strategic planning was also identified.
- **Partnerships for sustainable development** were the focus of a study that looked specifically at the use of partnering arrangements in the environmental field. In chapters 5, 6, 7 and 8 of the Commissioner's 2000 Report, we concluded that key success factors for successful partnerships include clear and realistic objectives and expectations for results, shared or complementary goals, effective and committed individuals, clear benefits for participating organizations, and senior management's interest.
- **New governance arrangements** with external partners are increasingly used to deliver federal programs and services to Canadians. Chapter 23 (Involving Others in Governing: Accountability at Risk) of the Auditor General's November 1999 Report found that under many of these arrangements, Parliament has limited means—in some cases, no means—of holding the government to account for the federal functions performed or the federal objectives to be achieved.
- **Reporting performance to Parliament** is critical to effective accountability. Chapter 19 (Reporting Performance to Parliament: Progress Too Slow) of the Auditor General's 2000 Report found persistent deficiencies, including a lack of concrete, measurable expectations; too much focus on reporting of activities instead of outcomes; very little linking of financial and non-financial information; and an overall lack of balance (reporting of good news only).
- **Science and technology** was the subject of work that assessed whether the federal government had met its commitments to manage its science and technology portfolio more strategically. In Chapter 9 (Science and Technology—Overall Management of Federal Science and Technology Activities) and Chapter 10 (Science and Technology—Management of Departmental Science and Technology Activities) of the Auditor General's 1994 Report, we noted that there had been a lot of activity but few results. We attributed the lack of progress to a lack of overall government-wide leadership, direction, and accountability for implementing desired changes. Our follow-up in Chapter 15 (Federal Science and Technology Activities—Follow-up) of the Auditor General's 1996 Report noted considerable progress by the government, but we reiterated our concern about the need for leadership and effective accountability for results.



APPENDIX B—Organizational Landscape
Key agreements, organizations, and programs for managing environmental and sustainable development issues in the Great Lakes and St. Lawrence River basin

	Agreements		Discussed in this chapter
	Organizations		Discussed in this chapter
	Programs		Discussed in this chapter

★ Discussed in previous reports

Report of the Commissioner of the Environment and Sustainable Development to the House of Commons—2001

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Sustainable Development**
to the House of Commons

Managing for Sustainable Development

Chapter 2

Sustainable Development Management Systems

Chapter 3

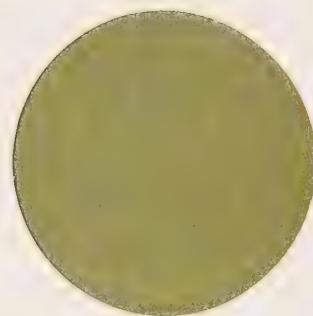
Reporting on Sustainable Development:
Is the System Working?

Chapter 4

Assessing the First Sustainable Development Strategies

Chapter 5

Integrating the Social Dimension: A Critical Milestone



2001



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Integrating the Social Dimension: A Critical Milestone

The 2001 Report of the Commissioner of the Environment and Sustainable Development comprises seven chapters, The Commissioner's Perspective—2001, and a Foreword. The main table of contents is found at the end of this publication.



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Chapter

2

Sustainable Development
Management Systems

The audit work reported in this chapter was conducted in accordance with the legislative mandate, policies, and practices of the Office of the Auditor General of Canada. These policies and practices embrace the standards recommended by the Canadian Institute of Chartered Accountants.

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Sustainable Development Management Systems

Main Points

2.1 This chapter presents a mixed message. Some departments have shown examples of real progress in implementing management systems for sustainable development—Industry Canada, National Defence, Natural Resources Canada, and Transport Canada. On the other hand, some departments could not produce sufficient evidence to show that they had management systems for the commitments contained in their sustainable development strategies.

2.2 Eight of the sixteen departments audited this year showed evidence that they have most of the elements of a management system to implement the commitments in their sustainable development strategies. However, eight departments could not show us that they have management systems. We are concerned that the departments that could not show us a system may be at risk of not meeting their sustainable development commitments and may also slow the progress of the federal government toward sustainability.

2.3 Reflections on the past three years. Three years ago we expected that departments could develop and implement management systems to meet their sustainable commitments. Leading departments have demonstrated that it can be done. However, there are still far too many links missing in the chain. We are concerned that non-performing departments will drag other departments down. We are concerned because the issue is not compliance with a management system model but the ability to deliver on the government's promise to adopt a sustainable development agenda. Adopting a methodical approach to managing sustainable development is one test to measure whether the government is serious about sustainable development or whether it is treating it as a paper exercise. Only half of the departments we audited this year passed that test.

2.4 The largest enterprise in Canada does not have a co-ordinated approach. The largest enterprise in Canada—the federal government—does not have a common management approach, completed standards, a timetable, or oversight to guide and hold departments accountable for their sustainable development programs. There must be a Government of Canada perspective, which includes an agreed-upon timetable for implementation of a management system, if there are to be consistent management systems in all departments within a reasonable time frame.

Background and other observations

2.5 In 1997, 28 federal departments tabled their first sustainable development strategies in the House of Commons. The strategies contained the departments' action plans, including the objectives and targets that the departments and others would use as benchmarks for measuring progress.

2.6 In 1999 and 2000, we reported on the management practices that 12 departments were following to implement their sustainable development strategies. We have demonstrated in previous reports that a well-functioning management system is a strong indicator that intended results will be accomplished. As a benchmark of good practice, we used the International Organization for Standardization (ISO) 14001 standard for environmental management systems. This year, using the same benchmark, we assessed the management practices of the remaining 16 departments.

2.7 As noted in our 1999 and 2000 reports, our review of documentation provided by departments found that in most departments, much of the documented evidence provided to describe systems and processes had been prepared after the department was selected for review by the Commissioner of the Environment and Sustainable Development. We noted that many of the departments had undertaken significant efforts to describe elements of their environmental and sustainable development management systems, make enhancements to programs, and develop additional plans and initiatives. In some departments—Industry Canada, Parks Canada, Royal Canadian Mounted Police, Public Works and Government Services Canada, and Human Resources Development Canada—consultants largely undertook much of this work. These organizations must be careful to ensure that they retain in-house the knowledge developed by the consultants.

2.8 Our next audits will look at the performance of some departments in moving toward sustainable development. In those departments that presented evidence of well-functioning management systems, we will expect their management systems to be operating at all organizational levels and at all sites. In the departments with significant deficiencies, we will expect to see an active program to address these deficiencies, as well as progress toward their sustainable development commitments.

The Government of Canada recognizes that effective management processes are crucial for achieving results on the objectives outlined in departments' sustainable development strategies.

The Treasury Board Secretariat will assist departments and agencies by providing advice on establishing or strengthening appropriate management processes to support their activities. The Privy Council Office will ensure that senior managers recognize the priority that government has placed on sustainable development. Environment Canada will provide leadership and help to co-ordinate the efforts of departments across government to promote sustainable development. Each minister is accountable directly to Parliament for the department's performance against the objectives set out in the strategy.

Introduction

Canadians expect a safe environment

2.9 The federal government recognizes how important the environment is to Canadians and has committed to implementing a sustainable development agenda. There are significant risks if the government cannot deliver on its commitments for a healthier environment and more sustainable way of life. The risks to Canadians are larger and more complex than ever—they are more insidious in nature, such as the long-term exposure to toxic substances, and there is more at stake. Without a methodical approach toward implementing sustainable development for Canada, we are concerned that gaps in implementation will emerge and efforts could be focussed on less important issues.

2.10 Two founding principles. The success or failure of the government's sustainable development agenda rests on two principles. The commitments in the sustainable development strategies must be meaningful and address government priorities, and the government must have the capacity to deliver on these commitments.

2.11 Failure to meet these principles could mean putting the health and long-term well-being of Canadians at risk. We have written in past reports about the implementation gap—the federal government's failure to deliver on its policy commitments. Good performance is an effective way to close the implementation gap and regain credibility, both in Canada and abroad.

A well-functioning management system is critical for sustained success and continual improvement

2.12 In 1997, 28 federal departments tabled their first sustainable development strategies in the House of Commons. Each strategy contained an action plan, including the objectives and targets that departments and others would use as benchmarks for measuring progress.

2.13 We believe that results matter more to parliamentarians and Canadians than the systems or procedures that produce them. However, we decided that for the first three years of the sustainable development journey it would not be possible to audit results. It was too early in the implementation process, and many of the commitments in the first round of strategies did not include goals and targets that were measurable or that had a completion date. As an alternative, we determined that for now it would be more effective to look at the management systems that departments had established to deliver their sustainable development commitments. We believe that management systems are a valid indicator of a department's ability and intent to deliver commitments made in its sustainable development strategy. Furthermore, in the absence of more direct guidance, we expected that our audits would help departments establish effective management systems.

2.14 In February 2001, departments tabled their second sustainable development strategies in Parliament; for the last three years, they have reported on performance.

2.15 Exhibit 2.1 highlights just three meaningful departmental commitments from the second round of sustainable development strategies. There are many dozens more. We have noted from best practices that having a management system does not guarantee success; however, the lack of a functioning system increases the risk of not meeting commitments. In Chapter 3 of this Report, we note that, after three years, departments have reported attaining only 36 percent of the commitments in their strategies.

Exhibit 2.1 Meaningful commitments from departments' second strategies

Canadian International Development Agency

One of the Agency's development and program goals is "to support sustainable development in developing countries in order to reduce poverty and to contribute to a more secure, equitable, and prosperous world."

Indian and Northern Affairs Canada

A healthy human and natural environment is the Department's first goal in its commitments to the North (Yukon, Northwest Territories, and Nunavut).

Department of Finance

One of the Department's key issues is integrating the economy and the environment. This involves building on the Department's analytical foundation and knowledge base in support of more fully integrating environmental and economic considerations into targeting tax, spending, and related policies.

Source: 2001–03 sustainable development strategies

Focus of the audit

2.16 Our audit objective was to determine the extent to which federal departments and agencies have developed management systems to manage their sustainable development commitments. We assessed this capacity by looking at the completeness of each management system, and its application across the department.

2.17 In conducting our audits over the last three years, we set out to answer two questions: Have departments established the capacity to implement their strategies? Are federal departments doing what they said they would do in their strategies?

2.18 In our 1999 and 2000 reports, to answer the first question we compared the management practices of 12 departments with recognized standards of good management practice. This chapter repeats the process with the remaining 16 departments (see Exhibit 2.2). Chapter 3 of this Report answers the second question.

Exhibit 2.2 Departments audited

2001 Report of the Commissioner of the Environment and Sustainable Development

- Canadian Environmental Assessment Agency
- Canadian International Development Agency
- Correctional Service Canada
- Environment Canada
- Finance, Department of
- Foreign Affairs and International Trade, Department of
- Human Resources Development Canada
- Indian and Northern Affairs Canada
- Industry Canada
- National Defence
- Natural Resources Canada
- Parks Canada Agency
- Public Works and Government Services Canada
- Royal Canadian Mounted Police
- Transport Canada
- Treasury Board Secretariat

2000 Report

- Canada Customs and Revenue Agency
- Department of Canadian Heritage
- Fisheries and Oceans
- Canada Economic Development for Quebec Regions
- Solicitor General Canada
- Western Economic Diversification Canada

1999 Report

- Agriculture and Agri-Food Canada
 - Atlantic Canada Opportunities Agency
 - Citizenship and Immigration Canada
 - Department of Justice
 - Health Canada
 - Veterans Affairs Canada
-

2.19 We did not assess departmental results; nor do we offer an opinion on the performance of departments to date, except as reported by the departments themselves. We will audit and report on performance in future reports.

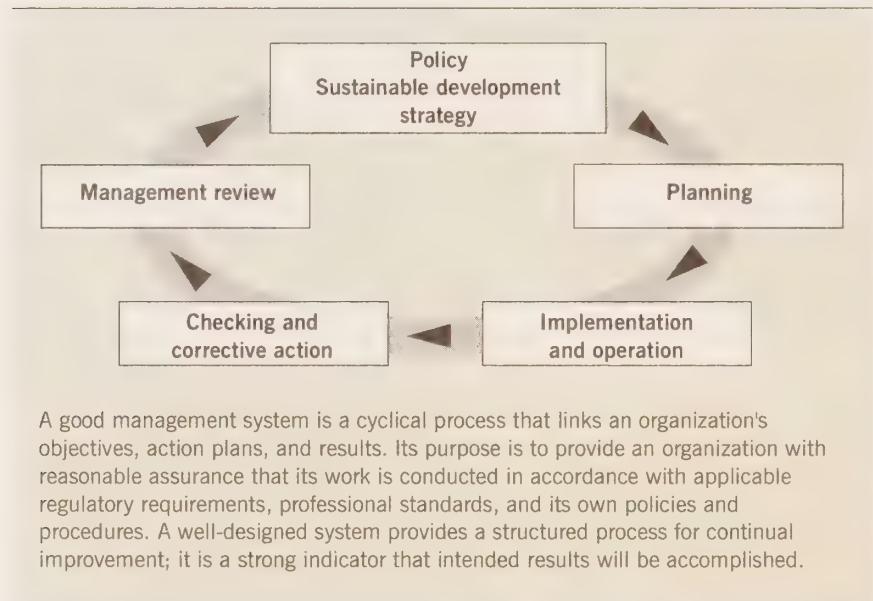
2.20 What we expected to find. In 1995 the government directed departments to establish environmental management systems that emulate the best practices in other sectors. The elements of a well-functioning management system are illustrated in Exhibit 2.3. This system reflects the same principles and steps articulated in the modern management agenda adopted by the Treasury Board Secretariat. Departments were also asked to make their management systems and operational practices more consistent with sustainable development. In response, all but three departments included in their 1997 sustainable development strategies a discussion of their

intent to develop appropriate management systems. Therefore, we expected that each department had a management system in place to deliver the commitments in its strategy.

2.21 For this audit, we requested that departments complete a self-assessment based on the International Organization for Standardization (ISO) 14001 environmental management system. In previous years we had completed assessments jointly with departments. That assessment also relied on the ISO 14001 standard for generic criteria. Our findings are based on the evidence presented by departments.

2.22 In assessing a department we looked for evidence that the five elements of a well-functioning management system were present (see Exhibit 2.3). We then compared the results for each department against the results for all of the departments in our sample. We found that each department fell into one of four levels. Further details on the audit are found at the end of the chapter in About the Audit.

Exhibit 2.3 A well-functioning management system



Observations and Recommendations

Leaders show it can be done

2.23 **A mixed message.** We found that the 16 departments we audited this year demonstrated a wide range of capacity to manage environmental and sustainable development issues. Most departments have some elements of a management system in place to address sustainable development and environmental commitments. However, only four departments have

management systems that are fully sufficient to manage and meet the commitments in their sustainable development strategies. Four other departments have developed their management capacity to a level where they have most of the elements of a functioning management system. Broader or better application in all areas of the department would give them a fully functioning management system. Six departments have significant deficiencies in their management systems. Their systems will require significant improvement to demonstrate a capacity to deliver the commitments made in their strategies. Finally, two departments show significant difficulties in most areas in developing appropriate management systems to meet their sustainable development requirements. More detail is provided in the following paragraphs and in Exhibit 2.4.

2.24 In reviewing the first and second set of sustainable development strategies, we found that of 27 departments and agencies (Parks Canada was part of the Department of Canadian Heritage) only 3 strategies did not contain a commitment to develop some kind of management system. By 2001, 19 of the 28 strategies showed that the departments did not have complete management systems in place.

Exhibit 2.4 Assessment of the management system in 16 departments

Level I	These departments have either a functioning management system for their environmental and sustainable development commitments or their system did not meet the audit criteria in a few minor areas.	<ul style="list-style-type: none"> • Industry Canada • National Defence • Natural Resources Canada • Transport Canada
Level II	These departments have either a significant deficiency in one of the five elements of a management system or their system was not functioning evenly across the entire department.	<ul style="list-style-type: none"> • Correctional Service Canada • Department of Foreign Affairs and International Trade • Public Works and Government Services Canada • Treasury Board Secretariat
Level III	These departments have more than one significant deficiency. In most cases, the deficiency related to the department's ability to measure and report on performance, review current practices, and guide improvement.	<ul style="list-style-type: none"> • Canadian Environmental Assessment Agency • Environment Canada • Human Resources Development Canada • Parks Canada • Royal Canadian Mounted Police • Canadian International Development Agency
Level IV	These departments had significant deficiencies in most areas in the management of their sustainable development commitments.	<ul style="list-style-type: none"> • Department of Finance • Indian and Northern Affairs Canada

Four departments have well-functioning management systems

2.25 Level I departments. National Defence, Industry Canada, Natural Resources Canada, and Transport Canada all provided evidence that they had well-functioning management systems to implement the commitments in their strategies.

2.26 These departments have demonstrated that a systematic approach to managing sustainable development is possible. They identified environmental and sustainable development aspects well; developed objectives and targets, programs, monitoring and tracking systems, and reporting procedures; and actively involved senior management in reviewing performance. There was evidence that specific commitments were managed from initial identification to management review of progress and accomplishments.

2.27 These departments have dedicated resources and, more important, commitment from senior management to set up management systems that guide their environmental and sustainable activities. Our audit of these four departments noted a number of best practices, some of which are presented in the Appendix to this chapter.

Four departments are almost there

2.28 Level II departments. These departments have initiated many of the elements of a well-functioning management system. Individual elements are in place; however, they either they are applied unevenly across all departmental programs (in Public Works and Government Services Canada, Foreign Affairs and International Trade) or the departments have weaknesses in one or more elements of their system (Correctional Service Canada, Treasury Board Secretariat). These deficiencies were often evident in the monitoring or performance reports we reviewed; there were not consistently strong links back to the objectives and targets identified in the department's strategy. These departments have made significant efforts to manage their sustainable development commitments. With additional effort, they should be able to demonstrate the capacity to manage their sustainable development strategy commitments on a department-wide basis. We have presented some additional best practices of two of these departments in the Appendix to this chapter.

Eight departments have not done it

Six departments have notable deficiencies

2.29 Level III departments. These departments (Human Resources Development Canada, Parks Canada Agency, Canadian Environmental Assessment Agency, Royal Canadian Mounted Police, Environment Canada, Canadian International Development Agency) have deficiencies in their capacity to manage sustainable development commitments, based on the evidence presented by each department. We found that senior management needs to reassess its level of commitment or its approach to managing the

implementation of its department's strategy. It should be noted that the Parks Canada Agency had until recently come under the strategy of the Department of Canadian Heritage. The Parks Canada Agency has written its first strategy and is in the early stages of developing a management system for its strategy.

Two departments have significant deficiencies in most areas in the management of sustainable development

2.30 Level IV departments. These departments (Department of Finance and Indian and Northern Affairs Canada) did not present sufficient evidence that they had adequately addressed the management of sustainable development at the corporate level. In our opinion, there is a significant risk that activities and initiatives to support sustainable development commitments are occurring ad hoc in the different programs of each department. While the Department of Finance introduced new processes and co-ordination in its first sustainable development strategy, we believe that efficiency and effectiveness would increase if these departments adopted a more systematic structure and approach. We note that six years have passed since the government asked departments to adopt a management system, and progress remains slow in these two departments.

2.31 The Department of Finance stated that it was integrating sustainable development into all aspects of its work. However, the Department did not provide us with convincing evidence that its sustainable development commitments in its first strategy (1997–2000) were managed in a systematic way or that they had been fully incorporated into existing processes.

2.32 Indian and Northern Affairs Canada, which is responsible for developing and co-ordinating a sustainable development strategy for the North on behalf of the federal government, has developed three separate sustainable development management systems at the branch level. Although actions supporting sustainable development have been carried out, progress among branches is uneven. Considerable effort is required before the Department can demonstrate department-wide capacity to manage sustainable development.

2.33 We are concerned about these findings because the Department of Finance and Indian and Northern Affairs Canada are important participants in meeting the government's sustainable development agenda.

Developing and implementing a management system

Problems are consistent over time

2.34 Patterns in previous audits. In our 1999 and 2000 reports, we noted that departmental practices were most developed at the planning stage of the departments' management systems. The systems became weaker as departments moved from the planning stage to the implementation and operation stage, and they were weakest at the checking and corrective action

stage and at the management review stage. Exhibit 2.5 provides details on our previous findings. They are consistent with findings from this audit.

Exhibit 2.5 Previous audit findings

Regulations and implementation

- Departments have yet to itemize or prioritize regulatory and other potentially applicable environmental and sustainable development obligations.
- Departments have yet to establish and apply systematic practices, procedures, and work instructions for strategy implementation, monitoring, and control.

Training

- Departments have yet to assess their training requirements.

Internal audit

- Most departments have yet to perform an internal audit of their management practices for environmental issues and sustainable development.

Top management review

- Top management has generally not reviewed the adequacy of the department's management practices for strategy implementation.
- Performance targets and performance reporting are non-existent or vague; consequently, departments (and independent stakeholders) lack the information necessary to track progress or to take corrective action.
- Most departments have no procedures to ensure that corrective action is taken when performance does not meet expectations.
- Although we were told that top management had periodically reviewed progress toward strategy objectives, we found no documentation showing the results of the reviews or management recommendations for corrective action.

Planning is generally well done

2.35 Implementation separates leaders from others. Consistent with our previous audits, we found that while almost all departments demonstrated a strong capacity for planning their sustainable development requirements, leading departments were able to adopt a systematic approach in establishing objectives, targets, and programs for all significant issues. We also noted that many departments had committed limited resources to the specific processes needed to develop their next sustainable development strategies for 2001. In many cases, level III and IV departments had to focus their efforts on drafting a revised strategy, which further hindered development of a management system.

Trouble implementing the plan

2.36 Half the departments (those with numerous deficiencies) did not articulate clearly the structure of and responsibilities for their programs. Almost all departments were able to identify the structure and organizational approach they use to produce a strategy, but many departments lack a similar

organizational approach for implementation. In departments with significant deficiencies, there was a failure to establish objectives and targets at the working level.

2.37 Going beyond the planning phase. Departments that primarily see sustainable development as a policy exercise were unable to show significant changes in programs, activities, or the way they do business. Although specific activities or projects could be shown to contribute to sustainable development objectives and targets, a systematic approach did not exist to establish responsibility and accountability for all commitments. In several cases, departments said that they had already been managing for sustainable development and had fully integrated it into current operations. However, they were unable to show the assignment of work and performance measurement systems for their sustainable development commitments.

2.38 Almost three years after the departments tabled the first strategies, we note a clear delineation between those departments that have gone beyond the planning stage and started to implement systems and operating procedures for managing their commitments and those departments that have not. This finding is also consistent with our previous audits.

2.39 Training is essential but uneven. Because the concepts and application of sustainable development are new to most staff, training is an essential part of the implementation stage.

2.40 Many good practices are emerging for sustainable development training. Public Works and Government Services Canada, for example, has developed and initiated a department-wide training program for environmental and sustainable development issues. Industry Canada also has developed a course that covers sustainable development issues in its programs. However, most departments have had little or no systematic training and have not systematically identified training needs within the department. None of the departments were able to provide evidence that all key staff had received training appropriate to the environmental risks of their activities or to the environmental and sustainable development objectives for which they are responsible.

2.41 Staff that we interviewed noted the need for information on how to manage sustainable development across the government and the lack of good information on “what to do” in this area. Awareness of sustainable development issues has been largely communicated through the Interdepartmental Network on Sustainable Development Strategies. However, this forum is not intended to meet the broader training needs of managers.

Tools for continual improvement are the exception

2.42 Monitoring and measurement are essential. There are significant differences in how departments have established procedures for monitoring and reporting sustainable development performance. Level I departments (National Defence, Natural Resources Canada, Transport Canada, and

Industry Canada) have taken steps to establish procedures for tracking sustainable development commitments and for assessing progress regularly. Without these procedures, a department's ability to manage and track progress toward sustainable development commitments is questionable. This information is critical for management to track how well the organization is doing and to take corrective action in areas where performance does not meet planned levels.

2.43 Poor monitoring affects the credibility of performance reports. The lack of monitoring procedures raises questions about the reliability of performance information in reports. Performance reports are often prepared in response to specific requirements such as issuing a call letter to provide information for preparing the departmental performance report. However, the procedures for compiling reports and assessing performance are not well defined. To produce the required report, an ad hoc effort is usually needed. It is clearly better practice and more effective to report progress more than just once a year.

2.44 An example of the value of taking a systematic approach to monitoring progress is the case of Human Resources Development Canada. The Department was unable to provide evidence to support an assertion made in its Performance Report. The Department had stated that it had met the second key objective in its sustainable development strategy—to consider sustainable development in the design of human resources development policies and programs. The Department was unable to show us evidence, beyond making the statement that it had done it, to prove this assertion contained in its Performance Report to Parliament. This objective may have been met, but because of gaps in its monitoring systems, the Department is unable to demonstrate this fact.

2.45 Aside from level I departments, all other departments require significant improvement in the procedures used to monitor and track progress on sustainable development commitments.

2.46 Robust corrective action system is rare. We noted that many departments lack a formal checking and corrective action procedure, which is critical to continual improvement of the management system.

2.47 Our assessment of the management systems and procedures for corrective action noted that they were in a very early stage of development in all departments, with the exception of the level I departments. For example, departments such as National Defence and Industry Canada demonstrated strong procedures in this area, including regular monitoring of action plan implementation, independent evaluations of their sustainable development strategy implementation, and a documented corrective action process.

Management review

2.48 In the early stages of a new program, senior management needs to conduct reviews frequently, focus on the effectiveness of the management system, and ensure that key implementation milestones have been met. In the

level I departments, management reviews have been occurring regularly. In level III and IV departments, we consistently identified management review as a significant deficiency.

An effective management review needs to do the following:

- focus on the management system;
- review performance objectives to assess why objectives may not have been achieved;
- identify the root cause of problems and determine system changes; and
- identify and correct potential problems before they negatively affect performance.

Many departments were unable to demonstrate a significant level of involvement by senior management.

2.49 Review of the management framework was rare. We noted that departments with the most gaps in their management systems presented little evidence of a process for conducting reviews (including reviewing implementation plans, audit reports, corrective actions) and for comparing the results of departmental performance against strategy objectives and targets. Senior management needs to determine which items to review regularly in order to assess how effective the management system is in implementing environmental and sustainable development commitments. Best practice reinforces the role of senior management in reviewing the management of the sustainable development strategies. Such a review can improve efficiency and consistency in meeting the commitments in their strategies. Without review, senior management will not know which questions to ask or what areas need attention.

2.50 Internal audit can play a key role. The recent Policy on Internal Audit released by the Treasury Board Secretariat affirms the internal audit function as a provider of assurance to senior management on the soundness of management processes within the organization. Sustainable development management systems are important management processes and, as such, are ideal for internal audit consideration.

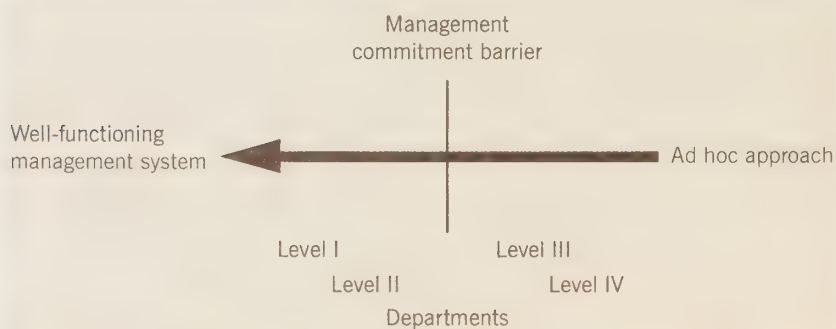
2.51 Internal audit cannot ensure management capability, but it is an essential component in assessing management processes and identifying gaps that could hinder the achievement of results. In the early stages of implementing a management system, internal audit can be an effective tool in identifying the gaps where the existing system does not meet all requirements. It also allows departments to prioritize their efforts. Most departments have involved their internal audit and review groups in the assessment of sustainable development issues. However, in about half the departments, these assessments have not looked at the sustainable development management systems and procedures.

Underlying causes of deficiencies

2.52 Leaders show it can be done. The leading departments have shown that it is possible to design, implement, and reap the benefits of a well-functioning management system. We note that most of the 16 departments face the same constraints and challenges of competing priorities. Half the departments broke through the implementation barrier and half did not. The obvious question is, why?

2.53 Sustained senior management commitment is critical. In the departments that have moved forward (level I and II), we found a visible and sustained commitment from senior management. We did not see evidence of this kind of commitment in the other departments. We have observed that, in most cases, the major difference between the leading departments and the rest is the involvement of senior management (Exhibit 2.6). In the level I and II departments, we saw a high level of participation and involvement by senior managers on a regular basis. We noted a correlation between the quality of the management system and the interest and participation of senior managers. We did not tend to see this type of leadership in the level III and IV departments.

Exhibit 2.6 Breaking through the management commitment barrier



2.54 After three years of auditing the management systems, it is our opinion that a lack of commitment by some departmental officials may mean that the sustainable development strategies and related management systems are at risk of becoming a paper exercise, with the primary goal of compliance with the *Auditor General Act* and meeting the requirements of the Commissioner of the Environment and Sustainable Development. Exacerbating the situation is a lack of managerial guidance from the Treasury Board Secretariat, acting on behalf of the government as a whole. In 1995, departments were told to implement management systems for their sustainable development programs. While many departments promised to do this in their first strategy, many are still not there.

Critical roles and responsibilities

2.55 The Privy Council Office and the Treasury Board Secretariat play a critical role. Past audit reports have consistently identified the lack of co-ordination among departments as a major concern. More and more of the government's priorities and initiatives cross departmental responsibilities. Success in these areas requires a high degree of co-operation and co-ordination. The role of the Privy Council Office is to ensure that departments are aware of the priority that the government has placed on sustainable development and that they understand the role they are expected to play. The Treasury Board Secretariat, as the management board of the government, must ensure that departments have management systems in place to meet their objectives.

2.56 Environment Canada has been assigned the responsibility to co-ordinate sustainable development efforts for the government. It is also important to note that each minister is responsible directly to Parliament for the performance of his or her department against the goals set out in the department's sustainable development strategy.

2.57 At the departmental level, leadership can be demonstrated by the commitment of senior management. As we have noted, such leadership can be observed in the leading departments. However, government-wide leadership is more difficult to assess. The federal government, through its central agencies, has issued several pieces of guidance and policy on sustainable development and its management. The Treasury Board Secretariat has also issued guidelines for the reporting of annual performance. However, Chapter 3 of this Report notes that only 7 out of 28 departments have complied with these guidelines in their 1999–2000 performance reports. Furthermore, we found that 4 departments met none of the reporting criteria. We also found no evidence to suggest that any agency has been holding departments to account for their lack of compliance. In our opinion, leadership can also be shown by holding organizations to account. If guidance is developed and issued, then there is also a responsibility to monitor adherence to the guidance, and to question non-adherence. Without such pressure, it is unlikely that the situation will improve.

Lack of a government-wide implementation date

2.58 Based on three years of audits, we note that each of the 16 departments is working at its own rate. Some have chosen to complete their management system; others have not. The government has failed to establish a timetable. Without a timetable, an implicit message is sent that although this may be important, it is not urgent.

2.59 Recommendation. The Treasury Board Secretariat should work with departments to establish management processes for the achievement of sustainable development commitments and to gain a commitment for a timetable from departments. These processes should be congruent with the modern management agenda adopted by the Treasury Board.

Government's response. The Government of Canada recognizes that effective management processes are crucial for achieving results on the objectives outlined in departments' sustainable development strategies, as well as for the continual improvement of the strategies themselves. All management processes across departments should contain the basic elements of a well-functioning management system noted in this chapter (strategy, planning, implementation and operation, checking and corrective action, and management review). At the same time, given the broad spectrum of departments and agencies, the flexibility should exist to tailor management processes to individual departmental circumstances, including the options of integrating sustainable development strategies into existing departmental management processes or establishing separate management processes.

The Treasury Board Secretariat, as the government's management board, will assist departments and agencies by providing advice on establishing or strengthening appropriate management processes to support their activities, including sustainable development. Where required, departments will make improvements to their management processes in order to fulfil their sustainable development commitments. It is important to emphasize that each minister is accountable directly to Parliament for the department's performance against the objectives set out in the strategy.

The Commissioner has noted the important role of senior management in establishing effective management systems. The Privy Council Office will ensure that senior managers recognize the priority that government has placed on sustainable development. Environment Canada will provide leadership and help to co-ordinate the efforts of departments across government to promote sustainable development.

Conclusion

2.60 The objective of this audit was to determine the extent to which federal departments and agencies have developed management systems that manage their sustainable development commitments.

2.61 Overall, we found that 8 of the 16 departments we audited have developed management systems to deliver their sustainable development commitments. While it is extremely difficult to measure intent, this issue became central while we carried out our audit. We noted a correlation among the level of senior management interest, the quality and frequency of the performance reports to management, and the apparent quality of the management system. Furthermore, we are concerned that some departments view their sustainable development activities as a paper exercise, with the primary goal of meeting the requirements of the Commissioner of the Environment and Sustainable Development.

About the Audit

Objective

Our audit objective was to determine the extent to which federal departments and agencies have developed management systems to manage their sustainable development commitments.

In order to determine the extent to which federal departments and agencies have developed these management systems, we looked at the completeness of the management system, and its application across the department. In this way we were able to get a measure of a department's capacity to manage its sustainable development commitments.

Scope and approach

To perform the audit, we used a self-assessment for the first time. We sent each of the 16 departments a questionnaire based on the International Organization for Standardization 14001 environmental management systems standard. We gave the departments almost six months to complete the questionnaire and to compile related documentation and evidence. Most departments stated that it took between five and ten working days to complete the questionnaire. They also commented that they found the exercise worthwhile as they understood their deficiencies much more clearly than if an outside agency had done the assessment.

We reviewed the documentation provided by the departments to determine if assessment criteria had been satisfied. One-day interviews were then scheduled with each department to obtain additional information for assessing whether criteria had been satisfied. As a result, we relied primarily on the self-assessment and documentation provided by departmental officials.

Criteria

In conducting this audit, we looked for evidence that the five major elements of a well-functioning management system were in place (see Exhibit 2.3). This management system reflects the same principles and steps articulated in the modern management agenda adopted by the Treasury Board. The criteria we used to assess the management capacity of the 16 departments reflect the principles set out in the ISO 14001 standard. This standard is a widely accepted benchmark of good management practice and due diligence. The standard is consistent with the Treasury Board Secretariat's principles of good management for planning, reporting, and accountability structures. As with the capacity audit program assessments completed for 12 departments and agencies in the preceding two years, the criteria were closely based on ISO 14001 and were designed by the Commissioner of the Environment and Sustainable Development to assess whether the 16 departments had implemented management systems to meet their sustainable development objectives. Specific audit criteria were provided for a number of elements of a management framework, including planning, implementation and operation, checking and corrective action, and management review and improvement.

Audit team

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Appendix—Best practices of six departments

Level I

Industry Canada

Strong planning documentation provides a good basis for identifying the key issues and the departmental programs or activities that support sustainable development initiatives.

A program has been implemented that clearly assigns resources and responsibility for the achievement of commitments made in the strategy. This allows easy tracking of progress.

Bi-annual monitoring and reporting of progress assesses achievements and deficiencies in meeting targets of the strategy. Deficiencies are reported to senior management.

National Defence

There is a clear and effective framework of objectives and targets that is set out in the management system.

Management programs are directly aligned with the identified significant aspects, legal requirements, and the Code of Environmental Stewardship.

Natural Resources Canada

A sustainable development working group system has been established within the Department. There is a departmental group and a series of sectoral groups.

A consultative approach to developing, reviewing, and improving the strategy has been adopted, which involves internal and external consultations.

Senior management is regularly involved in strategy development, implementation, and review.

The Office of Environmental Affairs manages environmental aspects of departmental operations, which includes conducting compliance audits and managing corrective actions.

Transport Canada

The planning and reporting aspect of the sustainable development management system has been integrated into the Department's overall reporting and accountability structure.

A comprehensive internal audit of environmental and sustainable development management issues was conducted, using ISO 14001 criteria, in preparation for the 2001 strategy.

Level II

Department of Foreign Affairs and International Trade

Comprehensive audits of the Environmental Services Division and the Sustainable Development Portfolio provide recommendations for improving the management of sustainable development.

Public Works and Government Services Canada

The structure and responsibilities for environment and sustainable development have been defined and documented in the environmental policy and draft manual.

Detailed programs and operating procedures have been implemented in the Real Property Services.

Chapter

3

Reporting on Sustainable
Development

Is the System Working?

The audit work reported in this chapter was conducted in accordance with the legislative mandate, policies, and practices of the Office of the Auditor General of Canada. These policies and practices embrace the standards recommended by the Canadian Institute of Chartered Accountants.

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Reporting on Sustainable Development

Is the System Working?

Main Points

3.1 This is the Commissioner's third annual report on federal departments' reporting of progress toward sustainable development. For the period ending 31 March 2000, the 28 departments and agencies that we monitor reported that they had met an average of about 35 percent of the commitments in their sustainable development strategies. This represents progress from the 20 percent reported in 1999, and 11 percent in 1998.

3.2 The Treasury Board Secretariat annually publishes *Guidelines for the Preparation of Departmental Performance Reports*; this document provides guidance on the structure and contents of the annual performance reports, including reporting on sustainable development strategies. The Secretariat encourages departments to follow the Guidelines carefully and to continue improving the quality of their performance reporting. While we found that more departments were following the Guidelines' requirements for reporting on sustainable development strategies than in previous years, few follow them in their entirety. This inhibits Parliament's ability to hold departments to account for their progress in meeting the objectives and implementing the plans set out in their sustainable development strategies.

3.3 In our view, the Privy Council Office needs to strengthen the present governance structure by ensuring that departments are aware of the priority that the government has placed on sustainable development and that they understand the role they are expected to play, including their obligation to report progress.

Background and other observations

3.4 In 1995, the *Auditor General Act* was amended to create the position of Commissioner of the Environment and Sustainable Development. One duty of the Commissioner is to monitor and report on the progress of departments toward sustainable development. To this end, departments are required to prepare sustainable development strategies and table them in the House of Commons. The first such strategies were tabled by December 1997.

3.5 The Act requires ministers to update their sustainable development strategies at least every three years. The second strategies were tabled in the House of Commons in February 2001.

3.6 This chapter reflects our experience of monitoring the first round of sustainable development strategies. Our observations and recommendations focus on areas that require further improvement in reporting progress on the second round of strategies.

The Privy Council Office agrees with the Commissioner of the Environment and Sustainable Development that meaningful performance reports, including the monitoring of progress toward sustainable development, play an important role in the government's accountability to Parliament. The Privy Council Office, through its participation on interdepartmental committees on sustainable development, will emphasize this importance and encourage departments to improve, where necessary, on their reporting.

The Privy Council Office and the Treasury Board Secretariat will encourage departments and agencies to continue to explore innovative approaches for enhancing intra- and interdepartmental information sharing on sustainable development.

Introduction

3.7 The position of Commissioner of the Environment and Sustainable Development was created by amendments to the *Auditor General Act* in 1995. The Commissioner's duties under the Act are, among other things, to monitor and report annually to Parliament on the extent to which departments have met the objectives and implemented the plans set out in their sustainable development strategies.

3.8 By December 1997, 28 departments and agencies had tabled their first sustainable development strategies in the House of Commons. With the creation of the Parks Canada Agency as a separate entity in 1999, there are now 29 strategies (see Exhibit 3.1). The Commissioner monitors 28 of the strategies; the strategy of the Office of the Auditor General was not included in this audit.

It's about accountability to Parliament

3.9 Performance reports play a key role in the government's accountability to Parliament. Parliament provides resources and authorities to government departments to provide services to Canadians. It is important that the departments' reports be balanced, reliable, and credible, and communicate clearly what Canadians are getting for their tax dollars. Performance information should identify shortfalls relative to public commitments and indicate, where appropriate, how they are being addressed.

3.10 Our findings are consistent with the December 2000 Report of the Auditor General. In Chapter 19, Reporting Performance to Parliament: Progress Too Slow, we assessed the strengths and weaknesses in the federal regime for reporting on performance by examining the Estimates documents of 47 departments and agencies over a period of four to five years. We reported that federal departments and agencies had made some progress in reporting on their performance to Parliament, but that we were disappointed in the pace. While that chapter reported a government-wide audit of the status of performance reporting and its progress, our focus in this chapter is restricted to departments' reporting on their sustainable development strategies.

Focus of the audit

3.11 A sustainable development strategy, as defined in the *Auditor General Act*, includes a department's objectives and plans of action for furthering sustainable development. These are public commitments, and departments are expected to report annually on their progress in their departmental performance reports, normally delivered in the fall.

3.12 Our objective in conducting our monitoring work was to determine whether the performance information that departments provide is adequate to allow members of Parliament and Canadians to know whether the departments' strategies are on track. In so doing, we also assembled and

Exhibit 3.1 Departments and agencies that tabled a sustainable development strategy**Departments and agencies required by legislation to table a strategy**

Agriculture and Agri-Food Canada
 Atlantic Canada Opportunities Agency
 Department of Canadian Heritage
 Canada Customs and Revenue Agency
 Canadian International Development Agency
 Citizenship and Immigration Canada
 Canada Economic Development Agency for Quebec Regions
 Environment Canada
 Finance, Department of
 Fisheries and Oceans
 Foreign Affairs and International Trade, Department of
 Health Canada
 Human Resources Development Canada
 Indian and Northern Affairs Canada
 Industry Canada
 Justice, Department of
 National Defence
 Natural Resources Canada
 Parks Canada Agency
 Public Works and Government Services Canada
 Solicitor General Canada
 Transport Canada
 Treasury Board Secretariat
 Veterans Affairs Canada
 Western Economic Diversification Canada

Departments and agencies that voluntarily tabled a sustainable development strategy

Canadian Environmental Assessment Agency
 Correctional Service Canada
 Office of the Auditor General of Canada
 Royal Canadian Mounted Police

reviewed summary-level information on the progress reported by departments.

3.13 To help Parliament know whether departments are doing what they said they would do, we reviewed their progress by comparing the goals,

objectives, targets, and actions outlined by each department in its 1997 strategy with the information contained in its performance report for the period ending 31 March 2000. These departmental performance reports were tabled in the House of Commons on 1 February 2001.

3.14 To determine whether departments' performance information is adequate for parliamentary oversight, we audited the sustainable development strategy information in the departmental performance reports for compliance with the concepts articulated in the Treasury Board Secretariat *Guidelines for the Preparation of Departmental Performance Reports*. We requested copies of any additional, more detailed progress reports that the departments had referenced therein.

3.15 Because we were assessing the adequacy of information provided to Parliament, we restricted our audit to the departmental performance reports and the documents they clearly referred to that are intended to inform parliamentarians.

3.16 We did not audit the reliability or accuracy of performance information in the departmental performance reports. This will be the subject of future work. Additional details on the audit can be found in About the Audit at the end of the chapter.

Observations and Recommendations

Departmental action

What ministers and their departments were asked to do

3.17 The annual departmental performance reports should provide Parliament with information on how the government manages its expenditures. They are also the primary means by which Parliament and others can monitor the progress of departments toward sustainable development.

3.18 Good reporting on performance strengthens accountability and trust in government. Adequate information allows better parliamentary scrutiny and demonstrates whether a department is learning from past experience and adapting accordingly.

3.19 The Treasury Board Secretariat document *Guidelines for the Preparation of Departmental Performance Reports* states, "The purpose of reporting on the sustainable development strategies is to apprise parliamentarians of progress made against commitments since the strategies [were] submitted." (See Exhibit 3.2.)

3.20 The section of the Guidelines that pertains to sustainable development strategies directs departments to report the following information in a brief narrative or listing of about a half-page in length:

- key goals, objectives, long-term targets;

Exhibit 3.2 Guidelines for the preparation of departmental performance reports

The purpose of reporting on the sustainable development strategies is to apprise parliamentarians of progress made against commitments since the strategies were submitted. Updates or further development of components of the strategies should be noted.

To facilitate reporting and encourage a logical flow of information, departments should report the following information in a brief narrative, or listing, of about a half-page in length:

- key goals, objectives, long-term targets;
- performance indicators or performance results measurement strategy;
- targets for the reporting period;
- progress to date; and
- corrective action, if any.

Background information and supporting details can be provided in an annex or by directing the reader to the departmental Web site.

Commitments that are shared across departments should be noted and interdepartmental discussions should be held to ensure consistency in reporting. Substantial investment of resources in the strategies as a whole, or specific initiatives, when identifiable, could also be highlighted.

Sources of additional information (e.g. reports, other publications, and Web addresses) should be included, when available.

Source: Treasury Board Secretariat, adapted from *Guidelines for the Preparation of Departmental Performance Reports to Parliament*, for the period ending 31 March 2000

- performance indicators or performance results measurement strategy;
- targets for the reporting period;
- progress to date;
- corrective action, if any; and
- sources of additional information, such as reports, other publications, and Web addresses, when available.

We believe that this framework provides a sound basis for accountability.

What departments did

3.21 Departments reported that they had met an average of about 35 percent of the commitments in their strategies. This indicates modest progress from 1999, when departments reported meeting 20 percent of their commitments, and from 1998, when they reported meeting about 11 percent of their commitments.

3.22 However, we are concerned about the adequacy of the performance information provided to Parliament because we found that few departments are following the Treasury Board Secretariat's Guidelines. In our opinion, poor reporting practices inhibit Parliament's ability to exercise oversight and hold departments to account for their performance.

3.23 Adherence to the Treasury Board Secretariat's Guidelines. We wanted to determine the extent to which departments provided adequate information to permit members of Parliament and Canadians to know whether the departments' strategies are on track. Therefore, we audited the performance information reported by departments for compliance with the six required elements specified in the Guidelines.

3.24 We observed that the half-page limit suggested in the Guidelines does not appear to provide sufficient space to cover all of the required elements. This is the case particularly since references to additional information are not included.

3.25 In our view, referencing more detailed information is a necessary compromise between the need for brevity in the summary-level departmental performance reports and the requirement for detailed, credible evidence for results achieved. We found that most departments devoted a full page or more to their sustainable development strategies in their performance reports. However, in most instances, we relied on the supplementary information that departments had referenced to give us a good understanding of progress toward sustainable development.

3.26 We found that departments' adherence to the Guidelines varied widely. In 1999 we reported that only 3 of the 28 departments provided all of the performance information specified in the Guidelines, including reference to more detailed information. This year, only seven departments provided all of the specified information (Atlantic Canada Opportunities Agency, Correctional Service Canada, Department of Foreign Affairs and International Trade, National Defence, Natural Resources Canada, Public Works and Government Services Canada, and Solicitor General Canada). Thus, three quarters of departments did not fully comply with the Treasury Board Secretariat's Guidelines (see Exhibit 3.3).

Exhibit 3.3 Sustainable development progress reports varied widely

Number of departments in compliance with the Treasury Board Secretariat Guidelines for the Preparation of Departmental Performance Reports							
Guidelines elements complied with (out of 6)	6	5	4	3	2	1	0
Number of departments (out of 28) in compliance	7	4	5	2	5	2	3
Percentage of departments in compliance	25	14	18	7	18	7	11

Some departments show it can be done

3.27 Leading departments. A number of departments demonstrated good reporting practices: Industry Canada, National Defence, Natural Resources Canada, Public Works and Government Services Canada, and Solicitor General Canada. These departments presented clear information on their

progress, using charts, which largely fulfilled the Treasury Board Secretariat's requirements. The departments addressed all of the targets for the reporting period and provided their own assessment of their progress as well as some information to support their claims. For the most part, the reports supplied an appropriate level of detail, a clear picture of what departments were doing to accomplish their commitments, and an indication of the extent to which the strategies were on track.

3.28 In Chapter 2 of this Report, we note that Industry Canada, National Defence, and Natural Resources Canada have well-functioning management systems for implementing the commitments in their strategies. Likewise, Public Works and Government Services Canada has initiated many of the elements of a management system to implement its commitments. Last year, we reported that Solicitor General Canada was well on the way to establishing good management and control practices for implementation of its strategy. Thus, our preliminary conclusion is that a good management system is required for good reporting.

3.29 Chapter 2 also raises questions about the reliability of performance information in reports, given the lack of monitoring procedures in many departments. A good management system facilitates a continuous cycle of monitoring, reporting, and corrective action that an ad hoc approach cannot support. Without appropriate monitoring procedures, a department is not able to effectively manage and track (let alone report on) progress toward sustainable development commitments.

Reporting

Range of weaknesses in reporting

3.30 We found many instances of non-compliance with the concepts articulated in the Guidelines; some departments did not report on their commitments in any detail, while others provided ambiguous information on progress. Even some of the departments that met the Treasury Board Secretariat's Guidelines exhibited some weaknesses in reporting.

3.31 Non-reporting. Of the 28 departments we monitor, 4 of them (Royal Canadian Mounted Police, Canadian International Development Agency, Indian and Northern Affairs Canada, and Western Economic Diversification Canada) did not report on progress against their commitments in their departmental performance reports or refer to supplementary information. The sustainable development commitments made by these four organizations represent 22 percent of the total number of departmental commitments. This represents a serious gap in reporting.

3.32 With the exception of Western Economic Diversification Canada, these organizations provided a preview of their second sustainable development strategies rather than reporting on their first ones. Not only have they failed to report on their performance last year, these departments

appear to have moved on without having clarified the status of their 1997 sustainable development strategies.

3.33 Two of the departments (Canadian International Development Agency and Indian and Northern Affairs Canada) told us that they had reported progress throughout their departmental performance reports. However, we were not able to readily match reported progress to their sustainable development commitments. In our view, this approach to reporting is not in keeping with the purpose of a special section devoted to sustainable development in the departmental performance reports. Such broad-based reporting makes it difficult for a reader to determine the progress that has been made against the commitments set out in the departments' sustainable development strategies.

3.34 Failure to report on all commitments. Of the 28 departments we monitor, the majority did not report on all their sustainable development commitments and therefore did not provide a complete progress report.

3.35 No supplementary information. About half of the departments referenced sources of supplementary information in their departmental performance reports. We relied on these sources to provide the detailed information we needed to understand progress on each commitment. Thus, for the other half of the departments that did not provide sufficient information, we could not determine the extent to which their strategies were on track or how well their action plans were being implemented.

3.36 Invalid and outdated references. Of the departments that did refer to supplementary information, two (Department of Justice, Canada Customs and Revenue Agency) provided Web addresses that were invalid, and another (Health Canada) had links to outdated information—the 1997–98 progress report. These departments need to be more careful in providing up-to-date and valid electronic links to information.

3.37 Unreferenced supplementary information. We requested that departments supply us with copies of the supplementary information they had referenced in their performance reports. One agency (Parks Canada) sent us a draft document that provided clear, relevant performance information in an easily read chart. However, we could not consider this information in our assessment of its progress reporting because it had not been referenced in the Agency's Performance Report. Parliamentarians would therefore not have been aware of the existence of the additional information. We encourage Parks Canada Agency to continue producing such informative reports and to reference them in future departmental performance reports.

3.38 In another example, Indian and Northern Affairs Canada sent us a large number of reports that had not been referenced. We could not consider them in our assessment for the same reason that we could not consider the report from Parks Canada Agency. Moreover, in contrast to the clear and relevant draft report provided by Parks Canada, it would take considerable effort for a member of Parliament to glean relevant progress information from reports not originally intended for that purpose.

3.39 Other departments (Finance and Canada Customs and Revenue Agency) provided the requested supplementary information as late as the end of March, two months after the tabling of the departmental performance reports. Again, a delay of this length would hamper Parliament's ability to hold departments to account.

3.40 **Vague reporting.** In some cases, departments report progress in ambiguous or confusing terms. This can mislead readers by masking a department's real progress. For example, the Atlantic Canada Opportunities Agency (ACOA) made a commitment to "facilitate and support discussions among OGDs [other government departments] and provincial governments." The Agency reported, "ACOA has participated in the Interdepartmental Network on Sustainable Development Strategies since its inception." The reported progress addresses part of the commitment to communicate with other government departments but leaves readers wondering what happened to the discussions with provincial governments. In another example, Transport Canada made a commitment to implement "emergency plans at all sites by 1999." The Department reported this target as met. The accompanying text states that "of the 20 airport facilities Transport Canada was operating in 1999, all have environmental emergency plans in place. Airports with the highest risk for environmental incidents have been identified, and priority has been given to establishing plans at these sites. In the next year, the department will be evaluating the need for environmental emergency plans at other sites such as ports and office facilities." In this case, readers do not know the status of emergency plans at all sites that require them, other than airports.

3.41 Occasionally, departments report progress that does not address their original commitments. In one example, Canadian Heritage made a commitment to "investigate subsidizing the use of transit and ceasing to provide subsidized parking." Rather than reporting on the status of its investigation, the Department reported the following progress to date: "Activities during Environment Week 1999 included a Commuter Challenge whereby departmental employees were invited to sign in and commit to not using their car to come to work for one day or one week." This leaves readers to speculate on whether the Department still intends to investigate subsidies or whether it considers the reported action as having fulfilled the original commitment. It is also not clear whether the Commuter Challenge extended in any form beyond Canadian Environment Week.

3.42 Some departments report accomplishments that can be easily misconstrued. For example, Public Works and Government Services Canada made a number of commitments to "comply with federal regulations." The Department reported that it had met these commitments and stated, "No regulatory infractions [were] incurred or warning letters received" In our view, the Department's claim that it had not received notice of any infractions fell short of providing assurance that the Department was in compliance with regulations. Rather, we would expect the Department to report how it exercises due diligence in this respect.

3.43 Use of acronyms and jargon. Departments sometimes overuse acronyms and abbreviations that may confuse readers or mean nothing to them. For example, the Department of Foreign Affairs and International Trade committed to "negotiate global agreement on POPs under UNEP auspices." The Department reported having completed this action. It explained that "Canada is currently drafting the necessary implementing regulations under CEPA 1999 with a view to allowing Canada's accession to the PIC Convention in mid-fall 2000 on the occasion of the 7th session of INC/PIC–Intergovernmental Negotiating Committee for the Preparation of the Conference of Parties of the Rotterdam Convention for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade scheduled for 30 October–3 November 2000 in Geneva." Although some of the acronyms and abbreviations are explained in various places in the Department's progress report, others are not.

3.44 We suggest that the use of acronyms be kept to a minimum in departmental performance reports. This would correspond with the Treasury Board Secretariat's Guidelines advising that departmental performance reports must be accessible to a broad audience and easily read by all, not just by government officials.

3.45 Reporting dates varied. Although the departmental performance reports state that they were "for the period ending 31 March 2000," 12 of the 28 departments we monitor reported on progress or referred to supplementary reports that went beyond that date by up to five months. This variance in reporting dates makes it hard for parliamentarians to assess progress. We liken it to holding a race with different finish lines for each participant.

3.46 Focus on activities rather than results. Following tabling of the 1997 departmental performance reports, the Treasury Board Secretariat, with other departments and agencies, did technical assessments of all 78 performance reports (including departments and agencies not required to table sustainable development strategies). In addition, they conducted peer reviews of 28 reports and a survey of members of Parliament and House of Commons research staff to determine the usefulness of the reports. They wanted to know, "What works and what needs to be improved?" They reported in the *Good Practices Guide*, a companion to the 1998 Guidelines, that parliamentarians and evaluation and policy specialists unanimously responded that, among other things, good departmental performance reports should focus more on performance results and outcomes than on activities.

3.47 We believe that results matter to Canadians. Yet departments continue to focus their reporting more on activities and outputs, such as attending meetings and developing policies, than on performance results and outcomes. For example, one of Environment Canada's goals was to "give Canadians tools to make sound decisions in a changing environment." An objective associated with this goal was to "increase efforts aimed at environmental education and communication." In its summary progress report for 1999–2000, the Department highlighted various activities. These included ongoing work in the "development and implementation of issue-specific strategic and

operational communications plans for priority files such as clean air, CEPA [Canadian Environmental Protection Act], and species at risk," a strategic review of the Department's Web site, consultations, and a number of community action and partnership projects. While these activities may be worthwhile, the Department did not provide a clear indication of the extent to which it has actually achieved its goals.

3.48 Failure to report on variances. Only two organizations (Canada Customs and Revenue Agency and Correctional Service Canada) provided insight into why their sustainable development strategies were not on track. Both organizations cited competing priorities and the lack of financial resources and personnel as impediments to implementing their sustainable development strategies. In our view, this approach is more credible than reports that focus only on "good news" and avoid any mention of performance that did not meet expectations.

The bottom line—accountability

3.49 Departments are obliged to report on their progress toward sustainable development and to account for their results to Parliament and the Canadian public. The Treasury Board Secretariat's Guidelines document specifies the elements and approaches to ensure credible reporting. Our audit showed that few departments are following this guidance fully. Consequently, Parliament is not receiving the information that it needs to hold the government to account. Our monitoring of the first round of sustainable development strategies over three years indicates that this is a chronic problem. We expect that this situation will not improve without intervention by a central agency.

3.50 The Secretariat's 2001–02 *Estimates—A Report on Plans and Priorities* states, "The Treasury Board provides advice to the government on how its resources should be managed, and ensures that Parliament and Canadians have the information needed to hold the government accountable." The Secretariat has defined its role as limited to providing advice and encouragement to departments rather than enforcing the Guidelines.

3.51 The Privy Council Office's role is to promote good governance and accountability in the government, and to ensure that departments are aware of the priority that the government has placed on sustainable development.

3.52 Until departments follow the Guidelines, Parliament cannot rely on the departmental performance reports to determine whether the strategies are on track or whether departments and agencies are making progress toward sustainable development.

3.53 Recommendation. The Privy Council Office should ensure that departments are aware of the priority that the government has placed on sustainable development and that they understand the role they are expected to play, including their obligation to report progress.

Government's response. To assist departments and agencies in their effort to support their ministers' direct accountability to Parliament, the Treasury Board Secretariat develops guidelines for departmental performance reports for reporting on the progress of all programs, including sustainable development. The departmental performance report guidelines have been revised for the current year to better emphasize the focus on results and outcomes, to enhance the quality of information, and to strengthen the linkages between resource allocation and results. Recognizing the diversity of departmental programs and activities, the revised guidelines also allow for departmental or agency discretion on content and format to best provide meaningful, results-based performance information. This is particularly applicable to horizontal activities such as sustainable development. For example, some departments may choose to report their progress within their various business lines, while others may choose a discrete reporting format.

The Privy Council Office agrees with the Commissioner of the Environment and Sustainable Development that meaningful performance reports, including the monitoring of progress toward sustainable development, play an important role in the government's accountability to Parliament. The Privy Council Office, through its participation on interdepartmental committees on sustainable development, will emphasize this importance and encourage departments to improve, where necessary, on their reporting. The Privy Council Office will also explore additional means to help ensure that senior management is aware of the priority that government has placed on sustainable development, including the obligation to report. It should also be recognized that in order for information that is either included or referenced in the departmental performance report to be meaningful, departments need to achieve an appropriate level of detail while maintaining a focus on results. The Privy Council Office and the Treasury Board Secretariat will encourage departments and agencies to continue to explore innovative approaches for enhancing intra- and interdepartmental information sharing on sustainable development.

Looking ahead

3.54 Following the tabling of the second round of sustainable development strategies in February 2001, our Office initiated a project to work with a group of departments that table strategies to establish an inventory of each department's new commitments. To start, we developed a common structure based on a hierarchy of goals, objectives, targets, and actions. Definitions were then written for each level of the hierarchy. Next, we classified each commitment appropriately, and asked the departments to verify the results. Finally, all departments were provided with copies of their inventories. In this way, departments will know precisely what the Commissioner of the Environment and Sustainable Development will be monitoring, and they can report on progress accordingly.

3.55 We expect that as more departments establish management systems to deal with their environmental and sustainable development issues (see Chapter 2), better performance information will be more readily available for departments to include in their annual performance reports. With well-functioning management systems, the establishment of their commitments

inventory, and increased adherence to the concepts articulated in the Treasury Board Secretariat's Guidelines, departments will strengthen their capacity to respond to the needs of parliamentarians and other interested Canadians for adequate performance information.

Conclusion

3.56 This chapter provides our third annual assessment of departments' progress in implementing the first round of sustainable development strategies. Our objective in conducting our monitoring work was to determine whether the performance information that departments provide is adequate to permit members of Parliament and Canadians to know whether the departments' strategies are on track. In so doing, we also assembled and reviewed summary-level information on the progress reported by departments.

3.57 As we found in the previous two years, the adequacy of information that departments provide in their progress reports varies widely. More departments than in previous years are following the Treasury Board Secretariat's *Guidelines for the Preparation of Departmental Performance Reports*. However, the performance information provided by most departments on the progress of their sustainable development strategies continues to fall well short of requirements. In our opinion, lack of compliance with the Guidelines' concepts hampers Parliament's ability to hold departments to account for their progress toward sustainable development.

About the Audit

Objectives

A key duty of the Commissioner of the Environment and Sustainable Development is to monitor the progress of departments in implementing their action plans and achieving their objectives for sustainable development. The Commissioner reports on progress in this chapter and other chapters of the report. The long-term goal of this work is to promote accountability through effective reporting and oversight of departmental performance in the management of environmental and sustainable development issues.

The objective of our audit was to determine whether the performance information that departments provide is adequate for members of Parliament and Canadians to know whether the departments' sustainable development strategies are on track. In the course of this work, we assembled and reviewed summary-level information on the progress reported by departments.

Scope and approach

We examined the departmental performance reports of the 28 departments and agencies that we monitor and that had tabled sustainable development strategies in December 1997. Our objective was to assess their progress on reporting against the action plans and commitments set out in their strategies in accordance with the Treasury Board Secretariat *Guidelines for the Preparation of Departmental Performance Reports*.

For all 28 organizations, we reviewed the sustainable development content of the performance reports tabled in Parliament and the supplementary documents that were referenced therein. To facilitate our examination, we developed a database containing all of the commitments made by each department in its strategy. We used the database to compare the information reported by the 28 departments in their progress reports with the goals, objectives, targets, and actions contained in their sustainable development strategies. We did not audit departments' accomplishments to verify the accuracy of reported results; this will be the subject of future work.

Taking at face value the information contained in the departmental performance reports and supplementary progress reports referenced therein, we audited the extent to which departments provided the performance information specified in the Treasury Board Secretariat's *Guidelines for the Preparation of Departmental Performance Reports*.

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Chapter

4

Assessing the First Sustainable
Development Strategies

The audit work reported in this chapter was conducted in accordance with the legislative mandate, policies, and practices of the Office of the Auditor General of Canada. These policies and practices embrace the standards recommended by the Canadian Institute of Chartered Accountants.

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Assessing the First Sustainable Development Strategies

Main Points

4.1 The six departments and agencies we audited all assessed their first sustainable development strategies, although we noted considerable differences in the process followed. We determined that there were two key ingredients to a good assessment—starting early and following a systematic process. In the future, we expect that an assessment of each strategy will be built into the sustainable development management system.

4.2 Natural Resources Canada did the most extensive assessment of its first sustainable development strategy. Senior management lent its support, involvement, and commitment to that process. The Department was the closest to having the strong management review and checking and corrective action components required in a sustainable development management system.

4.3 Departments and agencies identified two main problem areas in their assessments of the first sustainable development strategies. First, they found that the strategies were too broad, with too many goals and objectives and not enough measurable targets. Thus, they needed to set some priorities and develop more specific targets. Second, the departments and agencies recognized the need to develop or improve performance indicators to measure progress toward their sustainable development goals and objectives. We agree with these assessment results and will be auditing these areas in the future.

Background and other observations

4.4 The first sustainable development strategies were tabled in the House of Commons by December 1997. Since then, departments and agencies have focussed on implementing their strategies and reporting their progress.

4.5 In December 1999, we published the document *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies*. This document outlined how departments could improve their next strategies and asked departments to do three things: assess their first strategies, strengthen the planning of their strategies, and accelerate the development of their management systems. This audit focussed on the first thing—assessing their first strategies.

4.6 We reviewed the assessments of the first sustainable development strategies in three departments—Health Canada, Natural Resources Canada, and Industry Canada—and in three agencies included in the Industry

portfolio—Atlantic Canada Opportunities Agency, Canada Economic Development for Quebec Regions, and Western Economic Diversification Canada. These organizations were chosen for two reasons. First, they represent a cross-section of policy and program mandates. Second, they provide a sample of organizations that are important to the success of the sustainable development effort government-wide.

4.7 Certain management practices are essential to continual improvement, such as internal audit, self-assessment, and the assessment of changing circumstances. We identified some good examples of these management practices and expect departments to expand their use of these tools.

Introduction

4.8 In June 1995, the government released a document entitled *A Guide to Green Government*. It provided initial objectives for sustainable development and a common approach to preparing sustainable development strategies. By December 1997, 28 departments and agencies had prepared their first sustainable development strategies and tabled them in the House of Commons. For the first time, there was a picture of how each government department viewed sustainable development and how each intended to promote it. Preparing their strategies made departments, and also their clients and stakeholders, more aware of sustainable development issues. Since then, they have focussed on implementing their strategies and reporting their progress.

4.9 In December 1999, we published *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies*. The document outlined how departments could improve their next strategies and asked departments to do three things: assess their first strategies, strengthen the planning of their strategies, and accelerate the development of their management systems. The document also emphasized the importance of senior management support, involvement, and commitment (see Exhibit 4.1).

4.10 In February 2001, 29 departments and agencies tabled the second generation of sustainable development strategies in the House of Commons. The Parks Canada Agency, which became an agency since tabling of the first strategies, accounts for the 29th strategy.

Exhibit 4.1 The Commissioner's expectations for the second round of sustainable development strategies

I will be looking for a significant improvement in quality in the second round of sustainable development strategies. In particular, I expect departments to focus their efforts on three areas:

- **Assessing** their first strategies—determining what the first strategy has achieved, what has changed, and what needs to be done differently—and making those assessments available in the consultations leading to the second strategies.
- Strengthening the **planning** of strategies—drawing clear links between the departments' activities, the significant impacts of those activities and priorities for action.
- Accelerating the development of the **management systems** needed to turn the strategies from talk into action.

In each of these areas, the support, involvement, and commitment of senior management will be critical to move the organization up the learning curve.

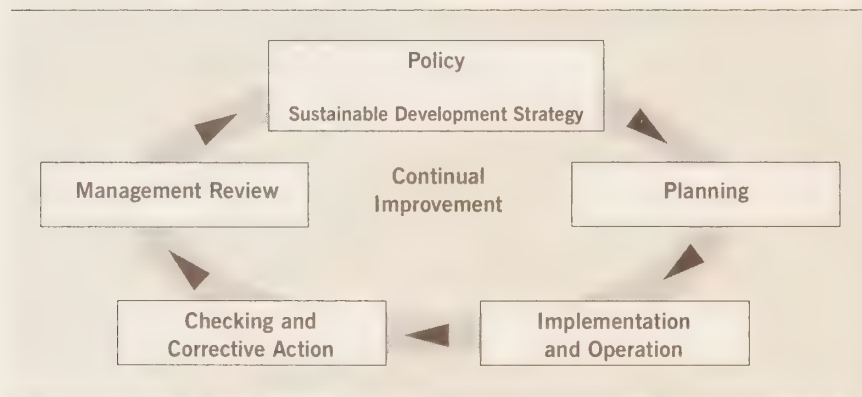
Source: Adapted from *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies*, Commissioner of the Environment and Sustainable Development, December 1999

Strengthening management practices

4.11 In our previous reports, we have said that the federal government needs to pay more attention to the management side of sustainable development. Our emphasis on good management practices is founded on the premise that they go hand in hand with good results. Our approach has been to reinforce good management practices, which we believe will contribute to achieving expected results over the long term.

4.12 An approach based on continual improvement. We have encouraged the government to adopt a management system approach used by leading organizations. This approach is based on continual improvement and consists of four components—planning, implementing, checking and corrective action, and management review (see Exhibit 4.2). The last two components—checking and corrective action and management review—are the key components required to facilitate improvement.

Exhibit 4.2 A management system approach



Source: Report of the Commissioner of the Environment and Sustainable Development, Chapter 1, 1999

4.13 Our audits of sustainable development management systems, reported in Chapter 1 of the Commissioner's 1999 and 2000 reports, found that departments lacked strong checking and corrective action and management review components. We audited six different departments in each of the two years, using ISO 14001, an internationally recognized standard, for our audit criteria. The 12 departments we audited scored an average of 29 percent in the checking and corrective action component and 10 percent in the management review component over the two years.

4.14 In Chapter 2 of this Report, we report on the sustainable development management systems of 16 additional departments. This completes three years of audits of the sustainable development management systems in 28 organizations. The conclusion in Chapter 2 is similar to that of the two previous years. Planning is generally well done, but the number and seriousness of deficiencies increase as we look at implementation through to checking and corrective action and then to management review.

Focus of the audit

4.15 The audit focussed on the first of the three things we asked departments to do in *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies*—that is, assess their first sustainable development strategies. The objective of this audit was to determine whether departments had moved up the learning curve through conducting this assessment. A broader objective of this audit was to identify good management practices.

4.16 We asked departments to do this assessment because it was a critical step in continually improving the management of sustainable development strategies. As recognized in *A Guide to Green Government*, sustainable development is not a fixed state and will not be achieved through a one-time effort. Rather, progress will be step by step based on continual improvement.

4.17 We reviewed the assessments of three departments—Health Canada, Natural Resources Canada, and Industry Canada—and three agencies included in the Industry portfolio—Atlantic Canada Opportunities Agency, Canada Economic Development for Quebec Regions, and Western Economic Diversification Canada. The agencies provide an audit sample of small organizations. The organizations we audited were chosen for two reasons. First, they represent a cross-section of policy and program mandates. And second, they provide a sample of organizations that are important to the success of the sustainable development effort government-wide.

4.18 Health Canada's mission is to help the people of Canada maintain and improve their health; Natural Resources Canada has the federal responsibility for the integrated management and sustainable development of Canada's natural resources; and Industry Canada has a legislative mandate that includes strengthening the national economy and promoting sustainable development. Exhibit 4.3 highlights the importance of the strategies in the three departments. The sustainable development strategies of the three agencies are important because they affect the sustainability of communities, the eco-efficiency of industry, and the development of environmental industries in their regions.

4.19 We interviewed 24 senior managers from the departments and agencies to discuss their involvement in the assessments. In addition, we discussed more broadly what sustainable development means to each organization. To review departments' and agencies' assessments of their first strategies, we developed criteria based on the Commissioner's expectations in *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies* (see Exhibit 4.4). Additional details can be found in About the Audit at the end of the chapter.

Exhibit 4.3 Importance of the sustainable development strategies in three departments

Health Canada

Health Canada's *Sustainable Development Strategy 2000: Sustaining our Health* contains targets for collective actions to sustain and improve our health and well-being and to protect our environment. Its purpose is to chart a course forward so that Health Canada can assist all Canadians to maintain and enhance their health in a way that is environmentally, socially, culturally and economically sustainable now and in the future.

Industry Canada

Industry Canada's *Sustainable Development Strategy, 2000-2003* is guided by a commitment to promote sustainable development as part of its mandate to create the foundation for a more productive, competitive, knowledge-based economy. This vision calls for the Department to play a leadership role and form partnerships to promote sustainable development through eco-efficiency, environmental technologies and decision making.

Natural Resources Canada

The commitments in *Sustainable Development Strategy—Now and for the Future* continue to move this agenda toward a future in which the wise use of our natural resources enables us to protect the health of Canadians, the environment, and landmass, while continuing to efficiently meet human needs for energy-, forest-, and mineral-based products, both now and for the future.

Source: Adapted from the second sustainable development strategies of Health Canada, Industry Canada, and Natural Resources Canada

Exhibit 4.4 The Commissioner's expectations for assessing the first sustainable development strategies

Departments are now partway through their first strategy cycle. Planning for the first generation of strategies has been completed and implementation is under way. Now is the time to check and improve

This assessment is a critical part of managing the sustainable development strategy process. Senior management needs to be involved in assessing the first strategy as the basis for improvement.

The assessment should include a review of the following:

- the goals, objectives, and targets set in the first strategy, and performance against them;
- findings from our audits and departmental internal audits or self-assessments of sustainable development management processes; and
- changing circumstances, including policy direction, legislation, activities, advances in science and technology, and stakeholder interests.

This process would conclude with an assessment of the current strategy's suitability and the need for any changes to [the strategy].

These questions—what has the department achieved with its first strategy, what has changed, and what needs to be done differently—are what participants in the first consultations told us they would like the consultations to address in the next round of strategies.

I expect each department to conduct and document an assessment of its first sustainable development strategy and use that assessment in its consultations for its second strategy. And I expect the second strategy to describe the assessment process and its outcome.

Source: Adapted from *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies*, Commissioner of the Environment and Sustainable Development, December 1999

Observations and Recommendations

Learning from the past

Using the knowledge gained in the first strategies is critical

4.20 Incorporating the knowledge and lessons learned from preparing and implementing the first round of sustainable development strategies is critical for the federal government's journey toward sustainable development.

Two key ingredients: Starting early and following a systematic process

4.21 The six departments and agencies we audited assessed their first sustainable development strategies; however, we noted considerable differences in the process followed. We determined that there were two key ingredients in a good assessment—starting early and following a systematic process. In our opinion, it is important that an assessment of each strategy be built into the sustainable development management system as part of the checking and corrective action and management review components.

Natural Resources Canada did the most extensive assessment

4.22 Natural Resources Canada started to assess its first strategy immediately after it was tabled in December 1997. The Department followed a systematic process that included revisiting and evaluating its goals and objectives; establishing time-bound, measurable targets; consulting with stakeholders on a performance measurement framework; strengthening the Department's management system; conducting an internal review of the first sustainable development strategy; and evaluating changing circumstances. The Department's assessment process unfolded gradually over time.

4.23 Health Canada took steps such as reviewing its targets and revising them to be time-bound and measurable, reviewing the preparation of its progress reports, and reviewing its environmental management system. Efforts were concentrated at the end of 1999 and in 2000.

4.24 Industry Canada conducted a structured mid-term evaluation of its first strategy, reviewing the results achieved during the first two years of strategy implementation, aspects that changed, and lessons learned. This evaluation was completed in the spring of 2000.

4.25 The Atlantic Canada Opportunities Agency (ACOA) did a baseline study of one of its objectives and had an external assessment of its first strategy prepared in 2000. Canada Economic Development for Quebec Regions had a strong assessment process. It had an external consultant prepare an annual report for each of the three years of implementation. The report monitored progress against targets and made recommendations for improvement. The third report in the series added information on knowledge acquired, lessons learned, and preparation for the 2000 strategy.

4.26 Western Economic Diversification Canada did not have a system in place to track progress against goals, objectives, and targets and therefore had a weak foundation on which to base an assessment. It waited until very late in the three-year implementation cycle to conduct an assessment. It prepared a discussion paper in July 2000 based on discussions with Agency staff, and this paper was circulated to stakeholders. An external consultant did an assessment of the first strategy in August 2000. Thus, the major part of the Agency's assessment was done after its consultation process was complete. However, senior management at the Agency was involved in the assessment of the first strategy and helped to identify fundamental areas that could be improved. The Agency's second sustainable development strategy indicates that, as a result of the assessment, the Agency has made a number of improvements. These include implementing changes to the environmental management system, and developing procedures to provide regular review of performance by senior management and establish goals, objectives, and targets.

First strategies needed improvement

4.27 The six departments and agencies assessed the continuing suitability of their first strategies, and most found them unsuitable. The exception was Natural Resources Canada, which found the direction of its first strategy to be suitable but identified areas that could be improved.

4.28 Some changes that departments and agencies commonly identified were the need to do the following:

- focus on fewer but more achievable goals, objectives, and targets;
- make targets clear and measurable;
- introduce a performance measurement system or strengthen the existing one; and
- improve the sustainable development management system and/or the environmental management system.

4.29 Changes that two or three departments identified were the need to do the following:

- involve senior management more;
- develop a long-term vision for the department; and
- increase the focus on the social dimension of sustainable development.

4.30 ACOA's second strategy captured its assessment results. These focussed on the need to build the profile of sustainable development within the Agency, educate employees, implement its environmental management system, make sustainable development commitments clear and measurable, and have senior management commitment (see Exhibit 4.5).

Exhibit 4.5 The Atlantic Canada Opportunities Agency assesses its first sustainable development strategy

What have we learned?

- Sustainable development as a concept and a goal needs a higher profile within the Agency.
- Educating our employees is a key part of implementing the sustainable development strategy.
- The Agency needs to strengthen the implementation process, namely, through its environmental management system.
- Our strategy commitments need to be clearer and more measurable.
- Senior management commitment to the strategy is essential.

Source: Adapted from Atlantic Canada Opportunities Agency, *Opportunities for Sustainable Development, 2001–2003*

Weaknesses in tracking progress and measuring performance

Goals, objectives, and targets provide focal point for departmental efforts

4.31 A *Guide to Green Government* required departments and agencies to develop goals, objectives, and targets when preparing their first sustainable development strategies. These provide tools for managing the organization's sustainable development agenda and benchmarks for measuring progress. Goals establish the overall sense of direction and set the parameters for action; objectives set the aims arising under each goal; and targets provide the detailed performance requirements that departments attempt to achieve.

Need to focus on a few critical issues and develop more measurable targets

4.32 The assessments for all of the strategies found that the strategies were too broad, with too many goals, objectives, and targets. They identified the need to focus on a few critical issues and to develop more measurable targets. For example, Health Canada's "lessons learned" section of its new strategy states that there was "a need to set better targets that focus on the Department's major sustainable development impacts. This meant narrowing the focus of the Department's sustainable development activities and concentrating on a few critical issues." Industry Canada's assessment indicated that the Department should concentrate on key strategic areas where it can make the greatest contribution.

Departments tracked progress but had difficulty measuring performance

4.33 We found that the three departments tracked progress against targets but had difficulty assessing performance against goals and objectives.

4.34 Tracking progress. The three departments had systems in place to monitor progress against targets, on either a semi-annual or an annual basis. Natural Resources Canada developed a Web-based tracking and reporting

tool that expedites reporting on implementation of its strategy. The Department made its 1999 progress report public by sending it to interested parties for comment. Industry Canada places an annual progress report on its Web site so that it is available for Canadians to track the Department's progress against individual targets. Health Canada has incorporated its progress reports on sustainable development commitments into its general management reporting system. The Department provides its annual report on progress on its Web site and on an internal departmental database.

4.35 Measuring performance. The three departments' assessments of their first strategies indicated that performance indicators to assess performance against goals and objectives were lacking or could be improved.

4.36 Consultations held shortly after tabling of its first strategy encouraged Natural Resources Canada to build on the draft performance measures in that strategy. As a result, the Department has built on its accountability framework (see Exhibit 4.6), which provides the foundation for all departmental planning and reporting. The three levels of the framework include reporting on first, actions; second, indicators and targets that allow the Department to measure progress against objectives; and third, at a broader level, indicators that allow the Department to report on goals that deal with the sustainable development of Canada's natural resources. The degree of difficulty of measurement increases over these three levels.

Exhibit 4.6 Natural Resources Canada builds on its accountability framework

Natural Resources Canada's work in promoting sustainable development can be assessed by stakeholders at three different levels.

At the most basic level, by reporting regularly on action commitments, stakeholders will have a clear indication of whether the Department is meeting its commitments.

At the second level, by refining indicators and establishing targets, the Department's performance can be measured against the strategy's objectives.

Finally, at a broader level, Canada's overall progress in the sustainable development of its natural resources can be assessed with indicators that deal with sustainable development practices in the areas of forest management, energy, and minerals and metals.

Source: Adapted from Natural Resources Canada, *Sustainable Development Strategy—Now and for the Future*

4.37 To illustrate this measurement, Exhibit 4.7 provides an extract from Natural Resources Canada's second sustainable development strategy. It shows the second and third levels of the Department's accountability framework. Natural Resources Canada will use these performance indicators to report to Canadians on one objective of one goal—that is, how Canada is addressing its international Kyoto commitment to reduce greenhouse gases. The exhibit also indicates the dates the Department will be tabling this information. (See Chapter 3 of this Report for a further discussion on reporting to Parliament on progress toward sustainable development and Chapter 6 for follow-up work on our 1998 audit of climate change.)

Exhibit 4.7 An example of performance indicators at Natural Resources Canada**Goal: To provide Canadians with strategies that reduce environmental impacts in the natural resources sector**

Objective as demonstrated by	Performance indicator	Targets and approaches	Tabling date
Canada addressing its international Kyoto commitment to reduce greenhouse gases	a) Greenhouse gas (GHG) emissions compared with Kyoto protocol b) GHG emissions to GDP ratio compared with other countries	Canada's Kyoto protocol target is to reduce GHG emissions to 6 percent below the 1990 level between the years 2008 and 2012.	2001
	Trends in use of renewable energy	Trend analysis and monitoring	2002
	Trends in energy efficiency	After the energy efficiency index has been developed, a desired directional target will be stated and a quantitative target will be considered.	2001
	GHG emissions from federal operations	By the year 2005, reduce GHG emissions from federal operations by 20 percent below 1990 levels	2003
	Progress toward the identification of impacts and adaptation measures	To be determined*	2001

*Commissioner's note: Natural Resources Canada plans to continually improve its performance measurement framework.

Source: Adapted from Natural Resources Canada, *Sustainable Development Strategy—Now and for the Future*

4.38 Industry Canada's assessment of its first strategy indicated that its performance measurement system relies heavily on meeting targets and that few performance indicators exist. The Department is conducting a program evaluation to develop performance indicators that are intended to include sustainable development.

4.39 Health Canada's new strategy indicates that the Department has a long-term target to develop and disseminate information on indicators of health and sustainable development to Canadians. Its short-term target is to develop and disseminate information, with partners, on at least 15 indicators of health related to social, cultural, and economic conditions by 2004.

4.40 Recommendation. Departments and agencies should develop or continue to strengthen performance indicators to measure the progress toward sustainable development.

Agencies need to monitor progress and measure performance

4.41 The three agencies did not have ongoing systems in place to monitor progress and measure performance toward sustainable development. Both the Atlantic Canada Opportunities Agency and Western Economic Diversification Canada left it until very late in the three-year implementation cycle to monitor progress and measure performance. However, Canada Economic Development for Quebec Regions had an external consultant

prepare an annual report for each of the three years of implementation; the report monitored progress against targets and made recommendations for improvement.

4.42 Recommendation. Small organizations should either have a system in place to monitor progress and measure performance toward sustainable development or ensure that the process is done in a meaningful way at a minimum of once a year.

Senior management support, involvement, and commitment

Senior management needs to play a key and active role

4.43 Senior management support, involvement, and commitment are critical to moving an organization up the learning curve. In Chapter 5 of our 1998 Report and Chapter 7 of our 1999 Report, we described the key and active role that senior management plays in developing and implementing strategy in leading organizations in both the private and public sectors.

4.44 We expected senior management to be involved in assessing the first strategy as the basis for improvement. Specifically, we expected to see the following:

- the identification of a senior manager with overall responsibility for sustainable development;
- the identification of an appropriate lead manager for the assessment of the first strategy;
- responsibility for the assessment clearly assigned and communicated;
- participation and support of senior management at headquarters and regional offices; and
- formal sign-off or approval of the assessment by senior management.

At a broader level, we expected to see both regular review by management of performance information on implementation of the strategy and discussion of sustainable development at senior management meetings.

Senior management at Natural Resources Canada is far ahead

4.45 Senior management in the six departments and agencies were involved in the assessment of the first strategy to some extent. However, there was a wide variation in commitment, with Natural Resources Canada being far ahead of the others. At that Department, senior management has lent its support, involvement, and commitment to the assessment of the first strategy and to sustainable development efforts in general. In our opinion, it is leading the cultural change necessary to make sustainable development part of the Department's operations. Some of the key elements that illustrate this cultural change are the following:

- appointment of a departmental sustainable development champion at the assistant deputy minister level several years ago (there has been continuity in that position);
- realignment of policy goals to match those in the sustainable development strategy;
- start of assessment of the first strategy shortly after it was tabled in the House of Commons;
- discussion of the assessment and sustainable development more broadly in senior management meetings; and
- clear identification and communication to staff of an appropriate assessment leader in the person of the Director of the Sustainable Development and Environment Division.

Senior management at Industry Canada and Health Canada are becoming involved

4.46 Senior management at both Industry Canada and Health Canada were involved to some extent in the assessment of the first strategy, and are becoming involved in sustainable development efforts in general.

4.47 At Industry Canada, senior management regularly reviews progress toward targets set in the first strategy. However, the Department had not appointed a champion for sustainable development at the assistant deputy minister level at the time of assessment of the first strategy. Senior managers told us that this would be done near the end of 2000. Its mid-term evaluation noted that the Department should “increase commitment and buy-in from senior management For example, a senior-level ‘champion’ responsible for sustainable development should be more clearly communicated to the Department.” Further, the Department did not involve regional management in the assessment of the first strategy.

4.48 At Health Canada, senior management also regularly reviews performance relative to targets set in the first strategy. Champions for sustainable development at the deputy minister and assistant deputy minister levels have been designated. The Director of the Office of Sustainable Development was clearly identified as the assessment leader and this was communicated to staff. The Director made sincere efforts to involve senior management; however, senior managers told us that they did not have sufficient opportunity to discuss sustainable development with their peers. They said that the reorganization of the Department and other urgent issues precluded the thoughtful discussion that this topic deserved. In addition, the Department’s Sustainable Development Steering Committee held one meeting during 1998 and 1999, but did not consider the assessment of the first strategy.

4.49 During the assessment of its first strategy, Health Canada learned that it is important to be clear about roles and responsibilities for sustainable development commitments. The Department has addressed this in its second strategy. A Sustainable Development Policy has been developed that contains roles and responsibilities for senior management, the Department’s

Sustainable Development Steering Committee, and the Office of Sustainable Development.

4.50 In Chapter 7 of the Commissioner's 1999 Report, *Building a Sustainable Organization: The View From the Top*, we reported that senior managers at Health Canada told us that they were exploring the relationship between population health and sustainable development. They were studying the interactions among the determinants of population health to advance their future work in areas that support both population health and sustainable development. During this audit, some senior managers told us that they were not aware of how work in this area was progressing and how the two concepts reconcile.

Atlantic Canada Opportunities Agency identified need for enhanced involvement of senior management

4.51 The Atlantic Canada Opportunities Agency prepared a baseline study in 1999 to assess its performance against one goal in its first strategy—to set an example in the environmental management of its operations. One of the conclusions of the study was that there was a gap in senior management commitment and a need to increase leadership and directives so that all employees are aware of the importance of the sustainable development priority. The Agency's broader assessment of its strategy confirmed the need for senior management commitment.

The social dimension of sustainable development is starting to be taken into account

4.52 Our interviews with senior managers highlighted a positive trend in their consideration of the social dimension of sustainable development. At Natural Resources Canada, for example, managers said that they have identified communities reliant on natural resources in order to establish a dialogue with them. Health Canada senior managers told us that they are focussing more on issues such as healthy childhood development and First Nations and Inuit health. (See Chapter 5 of this Report for a discussion of the social dimension of sustainable development.)

4.53 Recommendation. Senior management should increase its level of support, involvement, and commitment to enable organizations to move up the learning curve.

Some good management practices

Internal audit, self-assessment, and external audit are effective tools for continual improvement

4.54 Internal audits, self-assessments, and external audits are critical components of a sustainable development management system. They are effective tools for identifying gaps in good management practice and opportunities for improvement. They also provide the feedback necessary to

give assurance to senior management and other stakeholders that the management control processes are operating as designed and producing results. We found examples of departments and agencies using internal and external audit effectively to identify opportunities for improvement.

4.55 Internal audit. Natural Resources Canada's internal audit of its 1997 sustainable development strategy encouraged the Department to improve its accountability structure by assigning responsibility for achieving sustainable development strategy commitments to specific individuals or positions. The audit also noted that in some cases only commitments that were fully met were addressed in the 1999 progress report. It recommended that cases where commitments have not been fully completed should also be explained. In its second sustainable development strategy, the Department stated that it will address the recommendation to report on all commitments through its Web-based tracking and reporting system.

4.56 Since 1997, Health Canada has used internal audit extensively to audit its major facilities. The Department is the custodian of over 750 buildings and associated lands, and it leases space in approximately 250 additional facilities across the country. These facilities include laboratories, health centres, nursing stations, and hospitals, as well as offices, warehouses, and other storage facilities. The Department also manages a national fleet of approximately 540 vehicles. The internal audits of these facilities and vehicles identified the following issues that could negatively affect the environment:

- the use of resources including gasoline and vehicle fuels, water, various products, and energy used in buildings;
- leaking fuel storage tanks and contaminated sites;
- the use and/or presence of hazardous materials, ozone-depleting substances, PCBs, asbestos, and pesticides; and
- wastes and emissions including liquid effluents, mobile and stationary air emissions, hazardous wastes (including biomedical, radioactive, and chemical wastes), and non-hazardous wastes.

4.57 Health Canada has included many targets in its new sustainable development strategy that address these issues. Some examples are the following:

- Conduct building performance reviews at all Health Canada laboratories on an annual basis commencing by the end of March 2002.
- Remediate at least 75 percent of the assessed fuel-contaminated sites of the First Nations and Inuit Health Branch by the end of March 2004.
- Implement an environmental management system that is compatible with the ISO 14001 standards for hazardous wastes at all Health Canada laboratories and hospitals by the end of March 2003.
- Provide updated training in the following areas to all laboratory managers and employees who require it by the end of March 2002:

Workplace Hazardous Materials Information System, transportation of dangerous goods, and handling of toxic substances.

4.58 The recent Policy on Internal Audit released by the Treasury Board Secretariat affirms the internal audit function as a provider of assurance to senior management on the soundness of management processes within the organization. Sustainable development management systems are important management processes and, as such, are ideal for internal audit consideration.

4.59 Recommendation. Internal audit should identify and assess the risks associated with the sustainable development management systems of departments. These risks should be considered by internal audit in conjunction with other areas of risk when establishing audit coverage.

4.60 External audit. Four of the departments and agencies included in this audit had previously undergone our audit of sustainable development management systems, reported in Chapter 1 of the Commissioner's 1999 and 2000 reports. These organizations had considered the findings from our audits and had taken some action to improve their management systems. However, progress has been slow in the case of ACOA. The Agency included a target in its 1997 sustainable development strategy to develop an environmental management system (EMS) that meets recognized standards. After that, it commissioned the preparation of an EMS framework that was compliant with ISO 14001. This was completed in April 2000. According to its new strategy, ACOA intends to implement the EMS by early 2001, although no specific target has been set.

4.61 In our opinion, it is important for departments to continue to use and take full advantage of internal audits, self-assessments, and external audits to identify gaps in good management practice and opportunities for improvement.

Assessing changing circumstances is critical to continual improvement

4.62 We expected departments to take into account the impact of changing circumstances when assessing their first strategies. This would include circumstances related to policy direction, legislation, activities, science and technology, and stakeholder interests.

4.63 Natural Resources Canada assembled a multistakeholder Advisory Panel that focussed on assessing changing circumstances and developing an approach for the Department's second sustainable development strategy. The Advisory Panel identified specific areas where the Department's leadership is important. These included the following:

- developing integrated strategies;
- developing transparent accountability mechanisms;
- developing and promoting collaboration and consistency among governments;
- innovating;
- learning from the new economy;

- responding to climate change; and
- establishing and refining clear objectives, measurable targets, and meaningful performance indicators.

4.64 The Advisory Panel also discussed a number of domestic and international changes that Natural Resources Canada should consider; these included economic shifts on a global level, new relationships and commitments, the impact of technology, and the varying awareness and influence of the public.

4.65 Approaches for the new strategy were also addressed. The Advisory Panel members encouraged the Department to do the following:

- develop a vision of a sustainable future;
- make a measurable difference;
- determine what is sustainable and what is not, within its portfolio;
- acknowledge the need to make a transition to the “new economy”;
- demonstrate increased evidence of integrated decision making;
- promote innovation;
- encourage the transition to a more sustainable way of living; and
- demonstrate how Natural Resources Canada’s strategy fits with the efforts of other federal departments and other levels of government.

Themes to address in the second sustainable development strategy as well as desired outcomes for 2003 were also presented.

4.66 We noted that the Department developed a vision of a sustainable future and presented it in its new strategy (see Exhibit 4.8).

Participants in consultations need opportunity to address important questions

4.67 We expected departments to assess their first strategies early enough to use the results as input in their consultations. This would allow departments to consider what they had achieved with their first strategy, what had changed, and what needed to be done differently. And it would give participants in the consultations the opportunity to address these questions. Five of the six departments and agencies used the information gained in their assessment in the consultations for their second strategies.

4.68 Natural Resources Canada began its assessment process immediately after its first strategy was tabled. It was able to bring the results of a thorough assessment of the first strategy to the consultations for the second strategy. This assessment included the results of an ongoing process of citizen engagement, the revisiting of performance indicators, an assessment of progress toward the 125 targets the Department developed in the spring of 1999, and the results of the Advisory Panel.

Exhibit 4.8 Natural Resources Canada's vision of a sustainable future

This vision represents Natural Resources Canada's scenario for a future based on sustainable development—a vision that cannot possibly be achieved by a single department, or by governments alone. It requires ideas, determination, and action on the part of all Canadians, across all sectors of society.

Canada in the 21st century is a society that successfully integrates economic, environmental, and social considerations into all resource-related decision making. Canadians make sound decisions about resource development and use—decisions that consider ecological limits, factor in social dynamics that reflect local and global priorities, and capitalize on innovations and technological solutions that overcome environmental challenges to keep Canada competitive in the international marketplace. People of all ages, all regions, and all sectors work co-operatively and strategically to minimize the risk and maximize the rewards of responsible natural resources development.

Canada is a nation that takes full advantage of scientific knowledge and new technologies to harvest and extract resources in ways that maintain the integrity of natural ecosystems and that protect the nation's landmass, water, air, and wildlife. Human impacts on biodiversity have been dramatically reduced and mitigated. Canadians have access to an abundance of water of superior quality. Forests are utilized and respected for multiple uses, including recreation and resource extraction as well as the pursuit of Aboriginal people's traditional lifestyle. Healthy communities make optimal use of resources such as water and energy, and manage end-of-life issues in ecologically benign ways. A generation accustomed to recycling and reusing—mining aboveground resources through resource recovery—fails to understand society's previous reliance on landfill sites. Energy efficiency and renewable and alternative fuels are part of the mainstream.

Communities thrive as a result of technological innovation, economic diversification, and increased local decision making. Up-to-date, leading-edge information is broadly available and utilized, creating equitable opportunities for education and alleviation of poverty through a technologically skilled work force capable of capitalizing on job creation.

The private sector assumes greater responsibility for, and realizes the benefits of, the development of products with a longer life that reduce and manage wastes and free up landfill space for other uses. Canadian firms market their knowledge

and expertise to the world, satisfying global demand for ecologically responsible products and services. These innovations enable companies to realize productivity gains, contributing to Canada's competitiveness and ongoing economic growth and ensuring that Canada maintains its reputation as a global leader in sustainable development.

Beyond the natural resources sector, the focus has shifted to community needs and shared values. Communities are virtually connected, enabling environmentally friendly patterns of urban and rural land use and activity. Commonplace practices, including telework and telehealth, mean a reduced reliance on the automobile.

Canadians who continue to commute rely more on car pooling, cycling, or walking, as a result of changes in behaviour and outlook.

Natural Resources Canada demonstrates leadership by carrying out the necessary scientific research and making its knowledge widely available to translate sustainable development ideals into common practice. Government sets for itself—and meets—the highest standards that individuals, corporations, and communities can be confident are achievable and that they are motivated to emulate.

Future generations will look back on the turn of the century as a watershed in our nation's history—a time when there was a strong cohesion of views among governments, industry, communities, and a well-informed public that led to a joint commitment to action.

To make this vision a reality, Natural Resources Canada has established a set of goals, each of which have multiple objectives and actions that will enable the Department to advance sustainable development through its programs, policies, science and technology, legislation and regulations, and operations.

The actions of this sustainable development strategy are framed within the context of the anticipated outcome that will support this vision of a sustainable future. Progress toward this vision is measured against the Department's objectives, which support Natural Resources Canada's sustainable development goals, both now and for the future. Further, Canada's progress toward this vision will be measured through national indicators of sustainable development.

Source: Adapted from Natural Resources Canada, *Sustainable Development Strategy—Now and for the Future*

Assessment process and its outcome described in second strategy

4.69 It is important for organizations to clarify in their second strategies what they have achieved with their first strategies and what lessons they have learned that can be applied in the future. The six departments and agencies described the assessment process and its outcome in their second strategies.

4.70 For example, Canada Economic Development for Quebec Regions presented the objectives and accomplishments of its first strategy by two types of clientele—external and internal (see Exhibit 4.9 for objectives and accomplishments by internal clientele).

4.71 As another example, Industry Canada's second strategy captures the lessons learned from the first strategy. It stated that the Department should do the following:

- increase commitment and buy-in from senior management;

Exhibit 4.9 Canada Economic Development for Quebec Regions—Objectives and accomplishments of its first strategy (internal clientele)

Objective: Adjust the organizational culture to the new challenge of sustainable development and promote a comprehensive vision of economic, social, and environmental aspects

- A sustainable development committee was established.
- Management mechanisms were established to make sustainable development part of everyday operations: a heading on environmental assessment was added to the quality system acknowledgement of receipt form letter; the Agency's information system was improved to identify projects related to the environmental industry; and regional offices must include the sustainable development strategy in their business plans. In addition, the Agency recently signed a memorandum of understanding with the Canadian Environmental Assessment Agency on the environmental assessment of Aboriginal lands.
- The cultural adjustment process was simplified through the use of the Agency's ISO 9002 QUALITY SYSTEM to make operational changes, as well as the use of existing mechanisms and procedures, including semi-annual audits of quality system integrity.
- An awareness session on development opportunities related to sustainable development and the threats related to non-tariff barriers was provided for advisors. The Canadian Environmental Assessment Agency also gave three daylong training sessions.
- Information capsules on successful greening stories were published regularly in the Agency's in-house newsletter. A reminder about sustainable development was included in documentation distributed to new employees.
- In 1998 and 1999, an external assessment of the sustainable development strategy was carried out. The reports on performance and plans and priorities include an update on deployment of the strategy.
- The Agency serves on a variety of tables and committees related to the environment and sustainable development. These include the Interdepartmental Committee on Sustainable Development, sectoral and consultation tables on the greening of offices, sustainable development, climate change, development of the environmental industry, and environmental assessment.

Objective: Encourage and increase greening activities

- Paper recycling programs were established in every office. Systematic use of electronic mail and the Intranet and double-sided printing and photocopying were aimed at reducing paper consumption.
- A multi-product recycling program was started in three offices, including Head Office, where the Agency hopes to create a motivational effect on other tenants.
- The Agency's procurement process was revised to include concerns related to sustainable development.
- A new equipment maintenance program was implemented to prolong useful life.
- The Agency has begun to equip new vehicles (2/18) with hybrid engines.

Source: Adapted from Canada Economic Development for Quebec Regions, *Sustainable Development Strategy, Action Plan, 2000–2003*

- focus on key strategic areas;
- increase the private sector focus of the strategy;
- capitalize on partnership opportunities;
- promote better awareness of sustainable development within the Department; and
- review sustainable development initiatives to determine their relevance in advancing the Department's sustainable development agenda.

Conclusion

4.72 In our previous reports, we have said that the federal government needs to pay more attention to the management side of sustainable development. Our audit approach has been to reinforce good management practices, which we believe will contribute to achieving expected results over the long term. In *Moving Up the Learning Curve*, we asked departments to assess their first strategies to enable them to improve implementation and prepare for the second strategies. At the same time, this gave them the opportunity to strengthen two components of their management system—checking and corrective action and management review, which we have historically found to be the weakest components of sustainable development management systems.

4.73 The six departments and agencies we audited prepared an assessment of their first strategies, although they varied widely in quality. Five used the information gained in that assessment in the consultations for their second sustainable development strategies. All six departments and agencies described the assessment process and its outcome in their second strategies. Throughout this chapter we identified some examples of good management practices, and we expect departments to expand their use of these practices.

4.74 Natural Resources Canada was the closest to having the strong management review and checking and corrective action components required in a sustainable development management system. It carried out the most extensive assessment, started the assessment process early, and used a systematic process. Senior management was clearly involved and committed and lent its support to the process.

4.75 As we concluded in Chapter 2 of this Report, the planning component of sustainable development management systems is generally done well, but the number and seriousness of deficiencies increase as we look at implementation, through to checking and corrective action, and then to management review. We expect to see strong checking and corrective action and management review in departments and agencies in the future. We also expect to see assessments of each strategy built into the management system. It is important that these efforts include the support, commitment, and involvement of senior management; improved tracking of progress; improved performance measurement; and assessment by internal audit.

About the Audit

Objectives

This audit provides a bridge between our audits and studies of the first round of sustainable development strategies and those that will be done on the second round of strategies. We did this audit to help parliamentarians understand what departments had done to assess their first strategies in order to prepare their second strategies.

The objectives of the audit were to assess whether the departments and agencies we audited had done the following:

- conducted an assessment of their first sustainable development strategies;
- used the information gained in that assessment in the consultations for their second sustainable development strategies; and
- described the assessment process and its outcome in their second strategies.

A broader objective of this audit was to identify good management practices.

Scope and approach

We audited departments' and agencies' assessments of their first sustainable development strategies. We did not audit the second round of strategies, with the exception of the description of the assessment process and its outcome that appears in the second strategies. We also selected some examples of good practices from the second strategies.

We audited six organizations. These included three departments—Health Canada, Natural Resources Canada, and Industry Canada—and three agencies included in the Industry portfolio—Atlantic Canada Opportunities Agency, Canada Economic Development for Quebec Regions, and Western Economic Diversification Canada. These organizations were chosen for two reasons. First, they represent a cross-section of policy and program mandates. And second, they provide a sample of departments and agencies that are important to the success of the sustainable development effort government-wide. The three agencies were chosen because they complete the group of organizations in the Industry portfolio that were required to prepare a sustainable development strategy. As well, they provide an audit sample of small organizations.

We met with staff involved in the assessment process and reviewed the documentation they provided. As part of this audit, we interviewed 24 senior managers from the departments and agencies to discuss their involvement in assessment of the first strategies. In addition, we discussed more broadly what sustainable development means to their organizations. We also discussed what they have done and what they have to do differently in the future to make sustainable development part of their operations.

Criteria

The criteria we used to audit the departments' and agencies' efforts to assess their first sustainable development strategies were whether they had assessed the following:

- the goals, objectives, and targets set in the first strategies, and performance against them;
- findings from our audits and departmental internal audits or self-assessments of sustainable development management processes;
- the impact of changing circumstances, including policy direction, legislation, activities, advances in science and technology, and stakeholder interests; and
- the suitability of the current strategies and any need for changes.

We also expected senior management in the departments and agencies to be involved in assessing the first strategies as a basis for improvement.

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Chapter

5

Integrating the Social Dimension
A Critical Milestone

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Integrating the Social Dimension

A Critical Milestone

Main Points

5.1 Sustainable development not only involves protecting the environment; it also involves improving and maintaining the quality of life for people in Canada and in other parts of the world, without compromising the ability of future generations to meet their own needs.

5.2 Sustainable development is a concept based on the integration of economic, environmental, and social concerns. Environmental protection responds to the single goal of trying to preserve environmental quality. Sustainable development, however, is more complex. It recognizes that social and cultural factors play an important role in sustainable development, in addition to economic and environmental factors. As well, it seeks to ensure quality of life over the long term.

5.3 Our study noted five areas of consensus:

- First, while there is debate about how to define the social dimension of sustainable development, the focus should be on the interconnectedness of the three dimensions of sustainable development—economic, environmental, and social.
- Second, integrated decision making is essential. Decision makers need to consider the three dimensions of sustainable development when they make policy and enact law.
- Third, social learning and behavioural change are fundamental to achieving sustainability.
- Fourth, addressing the social dimension of sustainable development is a critical part of achieving sustainability, and incorporating the social dimension into the next round of sustainable development strategies is a priority.
- Fifth, developing measures and indicators for the social dimension of sustainable development is a challenge that needs to be addressed in the near future.

In our future work, we will use these areas of consensus as starting points for audits that include the social dimension of sustainable development.

Background

5.4 This study outlines current thinking about the social dimension of sustainable development and identifies areas of consensus. We conducted a review of the literature and two consultative workshops—one with consultants and academics and one with federal government departments. To

provide context, we also reviewed the first and second generations of sustainable development strategies and relevant international and domestic commitments to see if the social dimension had been addressed. In addition, we reviewed some emerging national and international indicators and performance measures for the social dimension of sustainable development.

Introduction

5.5 Sustainable development is not just about protecting the environment; it is about improving and maintaining the quality of life for people both in Canada and in other parts of the world, without compromising the ability of future generations to meet their own needs.

5.6 The concept of sustainable development gained prominence in the landmark document *Our Common Future*, prepared by the Brundtland Commission in 1987. It is based on the integration of economic, environmental, and social concerns. Environmental protection responds to the single goal of trying to preserve environmental quality. Sustainable development, however, is more complex. It operates from the perspective of development, with a focus on meeting people's needs, and it seeks to ensure quality of life over the long term.

5.7 While the social sciences have a long history and are well documented through a large body of literature, the meaning of the social dimension within the context of sustainable development is less understood. However, there is increasing recognition that social and cultural factors play an important role in sustainable development. Quality of life and well-being are determined by many factors—income, the state of people's health, their level of education, cultural diversity, the vibrancy of communities, and environmental quality—and all are potentially part of the sustainable development equation. The social well-being of the human population is integral in making sustainable development a reality.

5.8 In 1995 the federal government released a document entitled *A Guide to Green Government*. It provided initial objectives for sustainable development and a common approach to developing sustainable development strategies. The government's approach to sustainable development recognizes basic social values such as equity and the right to an adequate quality of life. Two examples that illustrate this approach are included in Exhibit 5.1.

Focus of the study

5.9 The objective of this study was to outline current thinking about the social dimension of sustainable development and determine if there were areas of consensus.

5.10 We reviewed the literature that discusses current thinking about the social dimension. We held two consultative workshops. One was with consultants and academics working in the fields of social policy, sustainability, and environmental management; the other was with staff from federal government departments who are involved in preparing and implementing sustainable development strategies. To provide context, we reviewed the 1997 and 2000 sustainable development strategies to see if federal departments had addressed the social dimension in their strategies. In addition, we reviewed a number of policies, international conventions, and bilateral and multilateral

Exhibit 5.1 The government's approach to sustainable development

The Canadian Way recognizes that economic and social success must be pursued together. We cannot build a prosperous society in the absence of economic growth. We cannot lead in innovation and new ideas without healthy and secure citizens. We must not pursue our interests in the world without strengthening our distinct culture and values here at home.

January 2001 Speech from the Throne

The purpose of Canada's economic strategy is to provide Canadians with a high quality of life. But quality of life is not simply defined by opportunities in the market. It also requires safe communities where people wish to live and raise their families, where they can receive the health care they need, where they can live without fear of crime or violence, where they can enjoy the benefits of clean air and water and green spaces, where they can participate in amateur sport, cultural activities and the arts, and where people of diverse backgrounds and cultures participate and contribute together.

The Canadian Way in the 21st Century, paper released by the Prime Minister of Canada,
May 2000

agreements to see whether the federal government had included the social dimension of sustainable development in its international and domestic commitments. We also looked at emerging national and international indicators and performance measures for the social dimension of sustainable development.

5.11 Additional details can be found in About the Study at the end of the chapter.

Observations

Sustainable development dimensions interconnected

5.12 Five broad areas of consensus emerged from the two workshops and our literature review. These included the following:

- The social dimension cannot be considered in isolation; it must be linked to the other two dimensions of sustainable development—economic and environmental.
- Integrated decision making is key. Decision makers need to consider the three dimensions of sustainable development when they make policy or enact law.
- Social learning and behavioural change are fundamental to achieving sustainability.
- Addressing the social dimension of sustainable development is a critical part of achieving sustainability, and incorporating the social dimension into the next round of sustainable development strategies is a priority.

- The challenge of developing indicators for the social dimension of sustainable development needs to be addressed in the near future.

The three dimensions are linked

5.13 Sustainable development is about more than environmental protection. It also includes equity and quality-of-life issues. *Our Common Future* noted, "The environment does not exist as a sphere separate from human actions, ambitions, and needs...the 'environment' is where we all live; and 'development' is what we all do in attempting to improve our lot within that abode. The two are inseparable."

5.14 **Broad range of terms.** The range of terms associated with the social dimension is broad, and it is possible to stretch the range to include all social aspects. The challenge is how to define the social dimension of sustainable development so that it does not become so broad that it loses all utility or meaning. The debate in the literature and among academics centres on where to draw the line.

5.15 Both our literature review and workshops revealed that one of the difficulties faced by governments and organizations is that no single definition of the social dimension's scope exists. The literature indicates that the social dimension can encompass many aspects—for example, health, education, ethics, equity, beliefs, diversity, indigenous people, safety, community building, intergenerational equity, intragenerational equity, and poverty.

5.16 The panelists at the workshop held with consultants and academics strongly urged that, instead of trying to isolate the social dimension, we think about human well-being and environmental quality and the linkages between them. They advised that we focus on the interconnectedness of the three dimensions of sustainable development.

5.17 A number of models were presented at the workshop. All the models we reviewed show the interconnectedness of the three dimensions of sustainable development. None confine their attention only to the economy or to the environment, and several give the three dimensions equal importance. Appendix A contains a description of the various models and summarizes the workshop.

Integrated decision making is key

5.18 Our study showed a broad consensus that integrated decision making is essential—that is, the three dimensions of sustainable development (economic, environmental, and social) need to be integrated into policy, planning, and decision making. *A Guide to Green Government* also states that an integrated approach to planning and decision making is needed. The three dimensions are linked, and government policy cannot focus on one component without regard to its impact on the others. The Guide outlines a range of techniques available to assist in understanding and integrating economic, environmental, and social considerations. (See *Greening Policies and Programs: Supporting Sustainable Development Decisions*, Chapter 9 of

the Commissioner's 1999 Report for a further discussion of integrated decision making.)

5.19 Our study also found a consensus that sustainable development can be fully realized only if social issues are addressed in conjunction with environmental and economic ones. Decision makers need to consider the three dimensions of sustainable development when they make policy and enact law.

5.20 The collapse of the Atlantic groundfish fishery, described in Exhibit 5.2, illustrates the interconnectedness of the three dimensions of sustainable development and the importance of integrated decision making. As the exhibit demonstrates, the collapse of the Atlantic groundfish fishery was the result of failing to develop a resource in a sustainable manner. In this case, an environmental problem—depletion of fish stocks—had severe economic and social consequences.

Exhibit 5.2 Collapse of the Atlantic groundfish fishery

The 1990s saw the collapse of the Atlantic groundfish fishery and the end of a way of life for people living in Atlantic Canada. Annual catches that amounted to two million tons in the 1960s fell to about 120,000 tons a year after the collapse. Traditional groundfish stocks were overexploited or depleted. The crisis began with the northern cod stock off the coast of Newfoundland and Labrador and then broadened to most other groundfish stocks throughout Atlantic Canada.

Environmental conditions, predator-prey relations, and excessive harvesting were identified as major factors in the groundfish decline. Fishing levels were set above conservation standards, fishers caught more than they were allocated, and some fishers used unsustainable fishing practices. These practices included unrecorded and misrecorded landings, dumping of bycatch (species not targeted by fishers or allowed by quotas), and highgrading (discarding fish to make room for more valuable fish that bring a better economic return or for which there is a need at the processing plant).

The collapse of the groundfish fishery had severe economic and social consequences. Thousands of fishers and processing plant workers were left unemployed. Groundfish workers largely lived in rural and isolated communities, where there were few alternative sources of employment. Many of those involved in the groundfish industry had low levels of education and lacked experience outside the fishery. As well, there was a deep cultural attachment to the groundfish fishery reinforced by several decades of government subsidies. These factors placed substantial pressure on the government to maintain the status quo.

The result was an over-capacity in the groundfish industry and a reduction in income available to individuals. Over the years, income from employment insurance had provided a significant and increasing portion of fisher and plantworker income. But fishers and plantworkers had to have income from fishing and processing jobs to be eligible for employment insurance. Without groundfish employment, many workers were unable to find enough work to qualify for employment insurance. When this employment opportunity was removed, fishers and plant workers had no means of accessing the benefits that were the basis for their employment insurance income.

The social and economic impacts would likely have been more severe had the federal government not intervened. A number of programs were implemented to respond to the crisis, including the Northern Cod Adjustment and Recovery Program, the Atlantic Fisheries Adjustment Program, The Atlantic Groundfish Strategy, and the Canadian Fisheries Adjustment and Restructuring Program. To address the critical problems related to the fishery that still persist, the government is moving forward with a plan for the development and approval of a sustainable fisheries framework for the Atlantic fisheries.

Additional information can be found in the 1997 Report of the Auditor General, chapters 15 and 16 and the 2000 Report, Chapter 33.

Source: Adapted from the 1997 Report of the Auditor General of Canada, Chapter 14, Fisheries and Oceans Canada—Sustainable Fisheries Framework: Atlantic Groundfish

Social learning and behavioural change are fundamental

5.21 The literature, the workshops, and the Atlantic groundfish case all stress that social learning and behavioural change are fundamental in achieving sustainability. This is the third area where we found broad consensus.

5.22 Social learning refers to the understanding and learning that individuals and societies need to make the changes required for moving toward sustainability. This includes a better understanding of the future consequences of actions taken today. The 1999 United States National Research Council report, *Our Common Journey: A Transition to Sustainability*, states:

... the pathways of a transition to sustainability cannot be charted fully in advance. Instead, they will have to be navigated adaptively at many scales and in many places. Intelligent adjustments ... can be made through the process of social learning. Such learning requires some clearly articulated goals for the journey toward sustainability, better understanding of the past and persistent trends of social and environmental change, improved tools for looking along alternative pathways, and clearer understanding of the possible environmental, and social threats and opportunities ahead.

5.23 The greening of the government's physical operations provides a tangible example of the need to understand and employ the concept of social learning. In *A Guide to Green Government*, the federal government states that it will lead by example in greening government operations. To achieve this result, the government faces an enormous challenge in social learning. It must change the behaviour of hundreds of thousands of public servants across the country. As government departments struggle with greening their operations, it becomes apparent that, like turning an ocean liner, there is more involved than just deciding to change direction. (See Chapter 2 of the Commissioner's 2000 Report for our audit report on greening government operations.)

5.24 Social learning also involves building co-operative, collaborative relationships. To integrate the social dimension, there is a need to overcome resistance to change and to develop positive responses to change. This can be accomplished by carrying out education and research to raise awareness, building relationships, developing new skills, and embracing and adapting to change. With regard to greening government operations, the government is pursuing many of these avenues, such as interdepartmental working groups, training in the concepts of environmental management systems, and the use of performance measurement.

Social dimension emerging in strategies

5.25 *A Guide to Green Government* sets out an approach for departments to follow in preparing sustainable development strategies. One critical requirement of this approach is that departments carry out an issue scan, assessing their activities for the impact on sustainable development. The

Guide also lists five primary objectives for sustainable development; each has a social component, as shown in Exhibit 5.3.

Exhibit 5.3 *A Guide to Green Government*—Social component of its objectives

Sustaining our natural resources—Sustainable jobs, communities, and industries.

Many Canadians are dependent on the natural resource sector to earn a living. It is important to make proper use of renewable and non-renewable resources.

Protecting the health of Canadians and of ecosystems. Human activities can have a negative impact on the environment and an effort must be made to minimize the impact in order to preserve human health.

Meeting our international obligations. Meeting our international obligations for sustainable development is affirmed as key to becoming a more sustainable society.

Promoting equity. The need to promote intergenerational and intragenerational equity is affirmed. The distribution of costs and benefits must be shared between current and future generations and between the poor and the more affluent.

Improving our quality of life and well-being. People depend on the environment and the economy to meet their basic human needs. Policy must be set to ensure that basic needs are met while also promoting sustainable development.

Source: Adapted from *A Guide to Green Government*, 1995

5.26 By December 1997, 28 federal departments and agencies had tabled their first sustainable development strategies outlining their objectives and plans for furthering sustainable development. In February 2001, these organizations tabled their second strategies in the House of Commons; in addition, the Parks Canada Agency, created as a separate entity in 1998, tabled its strategy.

5.27 In our review of the sustainable development strategies, we found that some departments had started to address the social dimension of sustainable development in their first strategies. Some had also identified social or cultural goals and activities as integral to their mandates. The social dimension continued to emerge in the second sustainable development strategies. For example, some departments identified social goals and objectives such as the following: to contribute to a better understanding of the social and cultural dimensions of sustainable development; to maintain and enhance sustainable communities; to develop a sustainable development strategy for the North; and to promote and support population health and safety. As well, some departments are working toward developing performance measures and targets. Appendix B provides some examples of social themes and targets that departments included in their second strategies.

Social and cultural sustainable development working group formed

5.28 Federal departments with social mandates or activities have formed a Social and Cultural Sustainable Development Working Group. Human Resources Development Canada is leading this group. In its second strategy, the Department states that its efforts, along with other social departments,

will ensure that critical research and thinking on the social and cultural dimensions will be undertaken in advance of the next round of sustainable development strategies. Participating departments include Agriculture and Agri-Food Canada, Department of Canadian Heritage, Citizenship and Immigration Canada, Environment Canada, Department of Foreign Affairs and International Trade, Health Canada, Human Resources Development Canada, Indian and Northern Affairs Canada, Department of Justice, Royal Canadian Mounted Police, and Solicitor General Canada.

Workshop held with departments

5.29 In November 2000, the Commissioner hosted a workshop on the social dimension of sustainable development with staff from federal departments involved in preparing and implementing sustainable development strategies. The workshop focussed on how departments are approaching the social dimension and identifying any constraints that prevent the social dimension from being fully integrated into their strategies. Appendix C presents a summary of the workshop.

Incorporating the social dimension is a priority

5.30 In addition to other areas of consensus, a fourth area of consensus emerged at the workshop with departments. Participants recognized that addressing the social dimension is a critical part of achieving sustainability and that incorporating the social dimension into the next round of sustainable development strategies, due in 2003, is a priority. Departments are at different stages of the journey toward sustainable development. Many are at an early stage; others appear better positioned to respond to the challenges of integrating the social dimension of sustainable development. Some participants felt that there should be a shared understanding of the boundaries around the social dimension; others did not see the need. However, participants did not identify constraints that would stop them from moving ahead and integrating the social dimension on a department-by-department basis.

5.31 In our future audit work, we expect to see that departments, especially those whose issue scan identifies major social impacts of their mandates and activities, have included the social dimension in the goals, objectives, and targets of their next strategies, focussing on areas where they can have the greatest impact.

Measuring progress of social dimension

5.32 Sustainable development is a complex and global issue that requires a multidisciplinary approach and co-ordinated resources to tackle. For the government to track, assess, and communicate its progress toward a sustainable society, it needs to be able to measure its progress on implementing national and international commitments and toward sustainable development. As the keynote speaker at the March 2001 National Conference on Sustainable Development Indicators, Minister of the

Environment the Honourable David Anderson stated, "We can only manage what we can measure."

Promises to Canadians and the world

5.33 For over a decade, the federal government has made commitments to sustainable development an integral part of its goals and values. In order to understand whether the social dimension is an integral part of these commitments, we looked at some of the government's commitments to Canadians and to the world, including a number of domestic and international policies, international conventions, and bilateral and multilateral agreements.

5.34 We found that nationally, the federal government has focussed its efforts toward sustainable development through a number of policies, programs, and commitments. The social dimension is an integral part of these commitments. Exhibit 5.4 illustrates some federal commitments that highlight the social dimension.

Exhibit 5.4 Some federal commitments that highlight the social dimension

- Action Plan on Health and the Environment, 1992–1997
 - Arctic Environmental Strategy, 1991
 - Toxic Substances Management Policy, 1995
 - Pollution Prevention: A Federal Strategy for Action, 1995
 - Federal Water Policy, 1987
 - Setting the Stage for the Next Century: The Federal Plan for Gender Equality, 1995
-

5.35 Internationally, Canada has made commitments to a number of important conventions and agreements, as well as attended meetings and conferences that include the social dimension of sustainable development. Exhibit 5.5 lists a selection of international conventions and agreements, as well as meetings and conferences attended in the last two decades that include the social dimension.

5.36 Some of these agreements—for example, Agenda 21—are landmark documents. The Agenda addresses the complex social problems that face humanity and defines ways to deal with them. Problems addressed in the Agenda relate to the following subjects: poverty, demographic dynamics and sustainability, human health, human settlements, integration of environment and development in decision making, women, children and youth, and indigenous people. The Agenda stresses that these social concerns are key to sustainable development and are as important as economic and environmental issues.

Exhibit 5.5 International commitments that include the social dimension

1987	Montreal Protocol on Substances that Deplete the Ozone Layer
1989	United Nations Convention on the Rights of the Child
1991	Declaration on the Protection of the Arctic Environment and the Arctic Environmental Protection Strategy
1992	Agenda 21—United Nations Conference on Environment and Development
1992	United Nations Framework Convention on Climate Change
1992	United Nations Convention on Biological Diversity
1994	"Programme of Action"—United Nations International Conference on Population and Development
1995	Copenhagen Declaration on Social Development
1995	United Nations Fourth World Conference on Women

Global efforts to measure progress

5.37 There have been worldwide efforts to develop indicators to measure progress toward integrating the social dimension of sustainable development at the local, national, and international levels. The literature concludes that indicators should be relevant to a situation and culture, accessible, timely, and well accepted. Appendix D identifies some contributors to the work being undertaken to develop social indicators, the criteria for developing indicators, and some of the major indicators. Some of the initiatives are described below.

5.38 International initiatives. The United Nations Development Programme (UNDP) developed the Human Development Index (HDI). It is a measure of the development of a country in economic and social terms. This index incorporates measures of life expectancy, literacy, and standard of living. These factors are combined to rank a country on a scale between zero and one, with one being the highest. Each year since 1990, the UNDP issues a Human Development Report, which includes a ranking of the world's nations.

5.39 The Organisation for Economic Co-operation and Development is developing a set of core indicators for use at the global level. These indicators are being developed with the United Nations and the World Bank to track progress on sustainable development issues. They will be used to adjust programs and initiatives to make them more effective. The indicators themselves will also be adjusted to meet changing needs and to incorporate new sources of data.

5.40 National initiatives. The Interagency Working Group on Sustainable Development Indicators (SDI Group) in the United States was given the task of developing indicators for sustainable development. The Group collaborates

with non-government organizations and the private sector to develop indicators to guide the government's progress. It has developed a proposed list of economic, environmental, and social indicators.

5.41 In 1999 the government of the United Kingdom published a sustainable development strategy, including a set of 15 headline indicators that give a broad overview of trends. It also published a national set of about 150 detailed indicators that focus on specific issues and identify areas for action. This set of indicators covers the economic, environmental, and social dimensions of sustainable development and is central to monitoring and reporting on progress toward sustainable development.

Canadian efforts to measure progress

5.42 There have been numerous approaches to developing indicators in Canada. The need for indicators has been recognized at many levels. For example, GPI Atlantic is a non-profit research group that is developing an index of sustainable development and well-being—the Genuine Progress Index for Atlantic Canada. Other projects to develop indicators include efforts by the Pembina Institute to develop the Alberta Genuine Progress Indicators and the Federation of Canadian Municipalities project on Quality of Life Indicators. The Canadian Policy Research Networks has also developed quality-of-life indicators. In addition, the Fraser Basin Council has developed a draft set of sustainability indicators for the Fraser Basin.

5.43 The National Round Table on the Environment and the Economy has undertaken a three-year project to develop a set of environment and sustainable development indicators for Canada. The project stemmed from the observation that traditional indicators, such as the gross domestic product, do not reflect the long-term sustainability of an economy, and newer, more comprehensive ones are needed.

5.44 At the federal government-wide level, the President of the Treasury Board tables an annual report *Managing for Results*, which includes a set of 16 societal indicators. The report states that they could serve as a foundation for building an overview of Canada's performance from the perspective of quality of life of Canadians. As well, departments are required to report annually on an individual basis to Parliament on indicators or measures they use to gauge progress toward the commitments set out in their sustainable development strategies. Chapter 3 of this Report deals with departmental performance reporting on sustainable development.

Developing performance indicators remains a challenge

5.45 At the workshop with government departments, officials told us that developing performance measures and indicators to gauge progress on the social dimension of sustainable development is challenging. However, a fifth area of consensus emerged. Departments largely agreed that this is a challenge that needs to be addressed in the near future. They also acknowledged that the responsibility to develop performance measures rests

with individual departments and each department needs to develop its own approach.

5.46 Parliament needs information to fulfil its oversight responsibilities.

Parliamentarians need an overall picture of how well the federal government is meeting its national and international obligations and its sustainable development commitments: where it has been successful; what gaps remain; and what lessons have been learned. To allow Parliament to fulfil its oversight responsibilities in this area, federal departments need to provide Parliament with adequate information on the implementation of national and international commitments, and all the dimensions of sustainable development—economic, environmental, and social—and the interplay among them.

5.47 Worldwide efforts have shown that social phenomena can be measured. To measure its progress toward sustainable development, the federal government needs accessible, relevant, timely, and well-accepted indicators. Without them, its ability to track, assess, and communicate progress toward sustainable development—a crucial part of its accountability—will be hindered.

5.48 In our future audit work, we expect to see that departments with implementing responsibilities are reporting to Parliament on the implementation of, and compliance with, domestic and international environmental and sustainable development commitments.

5.49 We also expect to see that departments have described their approach for measuring the social dimension of sustainable development, and have developed indicators that are relevant, complete, time-bound, and linked to targets and to departmental and government-wide commitments. As well, we expect to see that departments are reporting results, using these indicators.

Conclusion

5.50 We concluded that there were five areas of consensus concerning the social dimension of sustainable development.

- First, while there is debate about how to define the social dimension of sustainable development, the focus should be on the interconnectedness of the three dimensions of sustainable development—economic, environmental, and social.
- Second, integrated decision-making is essential. Decision makers need to consider the three areas of sustainable development when they make policy and enact law.
- Third, social learning and behavioural change are fundamental to achieving sustainability.
- Fourth, addressing the social dimension of sustainable development is a critical part of achieving sustainability, and incorporating the social

dimension into the next round of sustainable development strategies is a priority.

- Fifth, developing measures and indicators for the social dimension of sustainable development is a challenge that needs to be addressed in the near future.

In our future work, we will use these areas of consensus as starting points for audits that include the social dimension of sustainable development.

5.51 In our view, the management of the social dimension of sustainable development is an essential, complex, and enduring component of the broader challenge of managing for sustainable development. It requires all departments and agencies to develop co-operative and collaborative relationships that allow them to work together to make progress toward sustainable development.

About the Study

Objective

The objective of this study was to outline current thinking about the social dimension of sustainable development and determine if there were areas of consensus.

Scope and approach

We reviewed the literature that discusses current thinking about the social dimension, including definitions, emerging models, and the importance of social learning. We also held two consultative workshops. One was with consultants and academics working in the fields of social policy, sustainability, and environmental management; the other was with staff from federal government departments who are involved in preparing and implementing sustainable development strategies. We did not attempt to define the social dimension of sustainable development or favour one definition or model over another. Nor did we draw conclusions about the strengths and weaknesses of the various models.

To provide context, we looked at the 1997 and 2000 sustainable development strategies to see if federal departments are addressing the social dimension in their strategies. We did not do audit work or any qualitative assessment of the strategies. This may form part of our work in upcoming years.

We also reviewed whether the federal government had included the social dimension of sustainable development in its international and domestic commitments. We reviewed a number of policies, international conventions, and bilateral and multilateral agreements. Chapter 2 of the Commissioner's 1998 Report reported on Canada's international environmental commitments. As part of that study, the Commissioner's group created a database of Canada's international environmental agreements. From that database, we reviewed a number of international conventions and bilateral and multilateral agreements and identified some that included a social component. We made this identification by drawing from the broad range of terms associated with the social dimension (described in paragraph 5.15 of this chapter). We also looked at the emerging indicators and performance measures for the social dimension of sustainable development. We offer a sampling of approaches and initiatives to develop social indicators but do not comment on the full extent of efforts to measure progress.

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Appendix A—Summary of workshop with consultants and academics

Context

On 5 July 2000, the Acting Commissioner of the Environment and Sustainable Development met with consultants and academics to obtain their views and advice on addressing the social dimension of sustainable development.

We asked them the following questions:

- With respect to the social dimension of sustainable development, do you use a definition, metaphor, or a model? What is it? What are its strengths and weaknesses? How much of it is a value statement? What is (or should be) the relationship of the social dimension to sustainable development and its other dimensions (economic, environmental)?
- What are the potential pitfalls to avoid in addressing and increasing awareness of the social dimension? What emerging or past situations best illustrate the problems and opportunities in addressing the social dimension of sustainable development?
- Where should the focus of the Commissioner lie? What path should we take? What should our longer-term agenda and work plan look like?

Based on the insightful responses received, we organized a workshop comprising three panels to discuss these issues.

Defining the social dimension of sustainable development

Interconnected dimensions. The first panel dealt with the question, "What do we mean by the social dimension of sustainable development?" One of the main messages was that rather than trying to isolate the social dimension, we should go back to basics and think about human well-being and environmental quality and the linkages between them. An interesting comment was that the economic and social dimensions are closely linked, and a person's view of an issue can strongly influence how it is characterized.

Panelists noted that it is important to remember that there is a link to the environment. It doesn't need to be exclusive, but it is an essential part of the underpinnings. A lot of the interest in sustainable development flows back to concerns about basic needs and also to the environmental dimension. Therefore, a key focus, at least in the short term, should be on the interactions among the economic, environmental, and social dimensions.

Integrated decision making. Panelists agreed that to achieve sustainability in the decision-making process of the federal government, and at other levels of government, the culture and process of decision making needs to be changed. One panelist felt that the country is characterized by deep divisions in terms of gender, language, and geography and also among sectors—the research community, governments, and business. The divisions also exist within organizations. These divisions result in fragmented jurisdictional conflicts, and piecemeal and unco-ordinated policies.

The panel demonstrated that there is uncertainty about how to successfully address the social dimension. It is important to remember that this is a journey. If the social dimension is to be addressed successfully, it is essential that governments and citizens understand the interactions between environmental events and the social causes and impacts, as well as the behaviour changes that are necessary for improvement. A fundamental objective is to focus on integrated decision making.

Models. Various models were discussed, including the "three-legged stool" (economic, environmental, and social dimensions) and embedded circles. The latter looks at economics as a social construct—all within the largest circle, the natural environment.

Perhaps the easiest model to understand is a triangle that links each dimension of sustainable development to the other. A healthy economy can promote a healthy society; a clean environment can lead to a strengthened economy; and so on. Each dimension can provide positive or negative feedback to the others. One expert uses this triangle to describe the relation of each dimension in the context of a means to an end. He sees economic factors as a means of creating well-being for humans and the ecosystem.

Another model, a Venn-type diagram of three interlocking circles, shows how the three dimensions are related to one another. Whether a particular topic is economic, environmental, or social is often a grey area, because real-world

problems are usually complex. The problem of poverty illustrates this point. It is not merely an economic, environmental, or social problem, as each of these dimensions may play a role in its cause. This model acknowledges the dilemma, showing that the interrelation among dimensions exists, as opposed to the triangle model, which treats each dimension as separate.

A more complex circle diagram relates to the capital-theory approach to sustainable development put forth by the World Bank. It shows the biosphere as the outer layer within which both society and the economy are contained. The layers are labelled as forms of capital—natural, economic, social, and human.

Another model describes sustainable development as an egg. The inner yolk represents the economic and social dimensions, while the surrounding white is the environmental dimension. In order for the whole system to be healthy, both the yolk and the white must be healthy and sustainable. This model again shows the interconnectedness of the different dimensions, but combines the economic and social dimensions into one unit. Some argue that since the economy is a human construct, it should be considered a social dimension, while others think it is such a large concern that it demands a separate status.

A variation of the egg model shows three circles—economic, social, and ecological—as part of the larger "human systems" yolk that is surrounded by the "natural systems" white.

There is also a model that combines the three circles and the egg models. The three circles representing economic, social, and ecological aspects are part of a larger human systems grouping (the yolk), which in turn is surrounded by a natural system (the white).

These models present varying perspectives on how society fits into the overall picture of sustainable development. How important society is viewed as in the overall picture may depend on the individual. For example, an environmentalist may pay less attention to this aspect, while a psychologist may see it as a key concern.

Social capital. Discussion on social capital reflected several perspectives. The consensus was that social capital does relate to human capital. Panelists recognized that human capital is part of the social dimension debate. Social capital is a useful concept for communicating to particular audiences such as government, industry, and the business community. Panelists also noted that we must consider other important social concepts such as equity.

Equity. Panelists agreed that sustainable development must imply some element of equity—incorporating the notion of basic needs today and those of future generations. They concurred that a long-term lens (50 years plus) should be used to deal with the issues surrounding sustainable development. This means examining the social legacy—the kind of society that will follow from our action or inaction. That in turn means projecting policy implications over a long period, and adopting preventive principles. We need to invest in the future for our children.

Tools. Panelists noted the importance of education and communication in increasing awareness and bringing about behavioural change. Both communities and institutions will need to develop tools for education and for increasing awareness.

Other issues. Panelists also discussed a number of substantive aspects of the social dimension of sustainable development. They talked about ecojustice, which addresses the distributional aspects of environmental risk and of actions taken to deal with that risk. There was also discussion about property rights, poverty, and the gap between rich and poor in developed and less developed countries and within developed countries. They also talked about the impacts of poverty and affluence on environmental quality and on children's health. Panelists offered several perspectives on the impact of economic, environmental, and social issues on First Nations people and their traditional culture.

Potential pitfalls and opportunities in addressing the social dimension

The second panel focussed on the potential pitfalls that should be avoided in addressing the social dimension. Some panelists said the biggest pitfall was in defining the social dimension of sustainable development too broadly at the outset. They suggested that we start narrow and then go broad—in other words, "get our feet wet" on some of the issues that involve all the elements of sustainable development.

Panelists encouraged the Commissioner of the Environment and Sustainable Development to promote discourse on social development without trying to limit it, but to remain a focal point for ongoing practical discussions. They felt it was important for the Commissioner to promote and identify equity issues so that the discussion about equity could be more transparent and trade-offs more clearly identified.

Several panelists spoke about the importance of getting federal government departments to identify the social aspects of their activities and performance in their sustainable development strategies. Others said that departments should be encouraged to talk about well-being rather than social aspects, because the government's actions focus on this area. They argued that departments should identify the environmental impacts of social programs in their strategies because, while they may be achieving valuable social goals, they can't ignore the environmental implications. Getting the federal government talking about a "Government of Canada" perspective of sustainable development would be useful as well.

The panel emphasized the importance of participation and emphasized that the public be involved in decision making. This is a key element—the need for public participation and citizen engagement. One panelist noted that there are increasing concerns about loss of agency and loss of confidence in government, and in institutions generally. He noted that there is a range of understanding that guides actions, and thus there is a need for extensive deliberations to build consensus on actions that restrain human activity with environmental impacts.

Another panelist expressed that we need to "feel" these issues—not just think about them. He said the key is in the process of building relationships and letting the people affected participate in identifying the problem and in designing and implementing the solution.

Focus of the Commissioner's work

The third panel looked at how the Commissioner should focus attention on the social dimension of sustainable development.

Panelists recommended that the Commissioner choose areas that are integrative and touch the key elements of sustainable development (economic, environmental, and social). They noted that the role is to question and assess. By exploring the social dimension, the Commissioner has the opportunity to broaden the understanding of sustainable development and has a capacity-building opportunity as well. The Commissioner can encourage debate, promote the application of good tools to promote learning in government, and encourage a more sectoral and government-wide perspective on sustainable development. Getting departments talking about sustainable development and the social perspective would be useful. In addition, panelists encouraged the Commissioner to keep in mind the broader issue of environmental governance.

Panelists suggested a number of possible case studies. There was discussion in this context about indicators, measurement reporting, and the role of the Commissioner in this area.

Appendix B—Examples of social themes and targets from the second strategies

Contributing to a better understanding of the social and cultural dimensions of sustainable development

By 2003, participate in at least two interdepartmental exploratory projects to improve understanding of the Department's role in supporting the social and cultural dimensions of sustainable development.

Department of Canadian Heritage

Sponsor with other SCSD [Social and Cultural Sustainable Development Working Group] members a workshop with interested participants to discuss the social and cultural dimensions of SD [sustainable development] and the potential research and policy implications for federal departments by December 31, 2002.

Human Resources Development Canada

Maintaining and enhancing sustainable communities

[Promote] sustainable development principles through Sustainable Communities Initiatives in Cape Breton and the Annapolis Valley.

Department of Justice

Enhance the health of communities and their capacity to take action on health and healthy environments in all six Health Canada Regions by the end of March 2004.

Health Canada

Promoting and supporting population health and safety

Promote better practices leading to practical solutions to key issues of child development to at least ten organizations of health professionals by the end of March 2004.

Health Canada

Support and contribute to Health Canada's focus on SD [sustainable development] and healthy Canadians, and especially with respect to child-related health and well-being.

Human Resources Development Canada

Knowledge and information provided to Canadians to make better decisions promoting sustainable development

On an ongoing basis, [the Department] will communicate or consult with Canadians to better inform them on the production of Canadian food and to identify and address their concerns related to intensive agricultural production.

Agriculture and Agri-Food Canada

By 2003, provide up to 14 on-line services on the natural resources sector, as part of Government On-Line, including a Canadian Natural Resources Knowledge Gateway.

Natural Resources Canada

Promoting equity, reducing poverty, and providing basic human needs

Develop and implement, in consultation with partners, the Agency's four action plans in support of *CIDA's Social Development Priorities: A Framework for Action* (health and nutrition, basic education, HIV/AIDS, and child protection).

Canadian International Development Agency

Update and implement CIDA's poverty-reduction strategy in light of both ODA [official development assistance] and CIT [country in transition] priorities.

Canadian International Development Agency

Sustainable development strategy for the North

By 2001, in partnership with other government departments, participate in the development of an action plan as part of a Federal Northern Sustainable Development Strategy.

Natural Resources Canada

Implementation of obligations pursuant to agreements with Aboriginal peoples and territorial governments (ongoing).

Indian and Northern Affairs Canada

Appendix C—Summary of workshop with federal government departments

Context

On 28 November 2000, Johanne G  linas, the Commissioner of the Environment and Sustainable Development, hosted a workshop on the social dimension of sustainable development. The Commissioner and her staff wanted to learn how departments are currently approaching the social dimension of sustainable development, and to identify any constraints that prevent the social dimension from being fully integrated into sustainable development strategies and their implementation.

We asked each participant department to address the following questions:

- How are you currently addressing the social dimension of sustainable development? (We expected participants to point to examples from current draft strategies, programs, and plans.)
- Do these examples reflect your preferred approach? Is there more that should be done, or less—for example, would a tighter focus be preferable?
- What are the constraints, including constraints of knowledge and resources, that have an impact on federal departments' capacity to fully incorporate the social dimension of sustainable development into decision making?

We asked participants to provide us with a short, point-form, written response to these questions before the workshop.

We advised departments that this was a study, not an audit. The workshop was designed to help departments and us think about some aspects of the social dimension of sustainable development. In the chapter, we would not quote for attribution from the responses. We intended to use them to help us identify examples of the social dimension in the published sustainable development strategies, and to help us think about constraints and barriers. As well, anything said in the workshop was not for attribution, but was designed to help us all think about and exchange views on these issues.

How departments are currently addressing the social dimension

- Participants expressed strong interest in discussing the social dimension of sustainable development. They recognized that including the social dimension is a critical part of managing for sustainable development and is important in balancing its various dimensions (economic, environmental, and social). Participants mentioned integrated decision making as a key challenge.
- Issues related to the social dimension of sustainable development reflected the diversity among departments' mandates. For example, participants mentioned that the social dimension addresses issues of community, cultural sensitivity, quality of life, behavioural change, partnerships, Aboriginal peoples, redistribution, and equity.
- Participants recognized that incorporating the social dimension into the next round of sustainable development strategies, due in 2003, is an important priority.

Defining the social dimension of sustainable development

- The approaches and views of participants varied considerably on the definition of sustainable development and how the social dimension fit into that definition.
- One participant questioned whether there could be a single definition across government. Another felt that defining the social dimension for the whole federal government was not advisable. Another participant suggested that a single definition was not needed but that boundaries needed to be set.
- One participant noted that defining social aspects is tied to a department's mandate—how a department operates has an impact on other people. Some felt that departments have the right to define their own universe.
- Participants provided examples of social dimension issues, including sustainable communities, children's health, workplace health and safety, healthy societies, social development, social impacts, poverty reduction, governance, green citizenship, the need for knowledge and capacity building, green employment, full cost accounting, and security.
- Some voiced concern about looking at the social dimension solely through an environmental lens.

- Many felt it is important to look at the social dimension in the context of integrated decision making—that is, considering all dimensions together.
- Some expressed that the challenge for the sustainable development strategies is to balance all elements to achieve sustainability. However, several questioned whether the departmental sustainable development strategy is the right vehicle to address social aspects, as the social dimension cuts across all of a department's programs.
- As well, departments need knowledge, tools, and frameworks for a more integrated approach. One participant noted that when common tools and analytical frameworks have been developed, tested, and implemented, the next round of strategies will be more meaningful.

Mandate as the starting point

- Many participants noted that the departmental mandate is often used as a starting point for addressing sustainable development issues. Some noted that it is up to each department to determine whether social aspects are relevant.
- Some participants voiced the concern that given the legislated mandate of their departments, it is sometimes difficult to reconcile consideration of all three dimensions of sustainable development when implementing program decisions.

Departments are at different points

- Participants recognized that looking at the social dimension of sustainable development is a journey, or a learning curve. Departments are at different stages; many are at a very early stage. Some expressed that, given the increased complexity of dealing with the social dimension, they may be several years away from dealing with it adequately.

The importance of central leadership

- Some participants noted that strong central leadership is a prerequisite to making progress. Several voiced the view that an absence of leadership has slowed progress. Many participants said that, to make common progress, commitment from senior levels of government together with capacity building and shared approaches were needed.
- A participant also commented that sustainability is not the only horizontal issue that the government must deal with. It was suggested that the government should set the overall context and integrate mechanisms into governmental policies.

Measurability and performance indicators

- Considerable discussion centred on measurability and performance indicators. Several attendees pointed out that currently there are no indicators that examine the linkages among economic, environmental, and social factors. Some noted that without appropriate analytic tools, measures, and baseline data, departments lack the ability to track and monitor progress toward sustainable development. Others stated that many aspects of sustainable development are difficult to measure, especially in the short term. Some participants said that identifying models or best practices on how to approach the integration of all three aspects into decision making would be helpful. However, participants largely agreed that this is a challenge that needs to be addressed as they plan the third generation of strategies.

The role of the Commissioner of the Environment and Sustainable Development

- There was discussion on the different roles of the Commissioner—both capacity building and audit. Some felt that departments needed some assurance that the Commissioner would not be critical of departments' initial or innovative attempts to include the social dimension. There was also discussion about whether the Commissioner should be critical of departments that choose not to specifically address the social dimension in their sustainable development strategies. For example, a department with a primarily operational mandate may decide not to engineer social outcomes.
- It was pointed out that the Commissioner's expectations for the second round of strategies had been articulated in *Moving Up the Learning Curve: The Second Generation of Sustainable Development Strategies* issued in the fall of 1999.

- Some attendees noted the role of the Commissioner as a facilitator and capacity builder—for example, in helping departments make progress in greening operations and in developing some common performance measures through membership on an interdepartmental committee. Some participants see value in the Commissioner's continuing in a capacity-building role.
- The Commissioner acknowledged the challenges that departments face in addressing the social dimension. She recognized the challenges in establishing definitions and measures and in gaining senior level commitment.
- She invited departments to innovate in their work and assured them that she will try to ensure that the right people understand the right message.

Appendix D—Some emerging social indicators of sustainable development

Some contributors to the development of social sustainable development indicators:

Canada

- National Round Table on the Environment and the Economy (environment and sustainable development indicators)
- GPI Atlantic (Genuine Progress Index for Atlantic Canada)
- Pembina Institute (Alberta Genuine Progress Indicators)
- Canadian Policy Research Networks (Quality of Life Indicators)
- Fraser Basin Council (sustainability indicators)
- Federation of Canadian Municipalities (Quality of Life Indicators)

International

- United Kingdom (sustainable development indicators)
- Interagency Working Group on Sustainable Development Indicators, United States (sustainable development indicators)
- Organization for Economic Co-operation and Development, Joint project with United Nations and World Bank (sustainable development indicators)
- United Nations Development Programme (Human Development Index)

Criteria identified to develop effective indicators:

- Available—data are available and easily accessible
- Understandable—data are easily understood by various audiences
- Credible—data are supported by valid, reliable information
- Temporal—data can highlight trends over time and show progress toward goals
- Relevant—data and indicators reflect community values
- Comparable—data can be compared across regions
- Integrative—data demonstrate connections among key dimensions of sustainability

Source: Fraser Basin Council

Indicators used in projects:

- | | |
|---------------------------------|---|
| • Literacy rate | • Child poverty and malnutrition |
| • Infant mortality rate | • Crime rate |
| • Population | • Education levels |
| • Population growth rate | • Income levels |
| • Fertility rate | • Health care access |
| • Gross national product | • Social investment |
| • Life expectancy | • Death rates from cancer, suicide, and accidents |
| • Access to safe drinking water | • Health inequalities |
| • Access to sanitation | • Gender inequalities |
| • Urban population | |
| • Poverty | |

Source: Compiled from information provided at the workshops

Report of the Commissioner of the Environment and Sustainable Development to the House of Commons—2001

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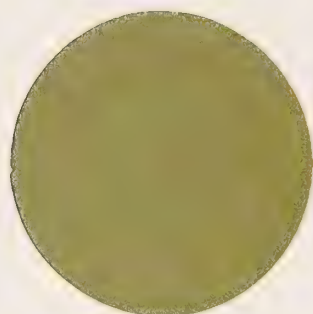


Report of the
**Commissioner of the
Environment and
Sustainable Development**
to the House of Commons

Follow-up

Chapter 6

Climate Change and Energy Efficiency:
A Progress Report



2001



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A Progress Report

The 2001 Report of the Commissioner of the Environment and Sustainable Development comprises seven chapters, The Commissioner's Perspective—2001, and a Foreword. The main table of contents is found at the end of this publication.



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Chapter

6

Climate Change and Energy
Efficiency

A Progress Report

The follow-up work reported in this chapter was conducted in accordance with the legislative mandate, policies, and practices of the Office of the Auditor General of Canada. These policies and practices embrace the standards recommended by the Canadian Institute of Chartered Accountants.

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Climate Change and Energy Efficiency

A Progress Report

Main Points

Climate change

6.1 Canada has committed to reduce its emissions of certain greenhouse gases to six percent below 1990 levels in the period 2008 to 2012 (Canada's Kyoto target). However, from 1995 to 1999, Canada's greenhouse gas emissions increased from 9 to 15 percent above 1990 levels. Therefore, the gap related to achieving Canada's Kyoto target widened while the time remaining to achieve it narrowed.

6.2 Since our 1998 audit, the federal government has made some important progress in rethinking its implementation strategy on climate change, and in changing the management structure for dealing with climate change by establishing a national climate change process. It has increased funding to address climate change and has launched the Government of Canada Action Plan 2000 on Climate Change, which is intended to take Canada a third of the way toward its Kyoto target. It is still too early to tell whether changes in the implementation strategy on climate change will reverse the upward trend of Canada's greenhouse gas emissions.

6.3 As part of Action Plan 2000, a new Federal House-in-Order Strategy has been announced. While 11 key departments and agencies have been assigned reduction targets for greenhouse gas emissions, all other federal entities will be invited to participate voluntarily. To demonstrate environmental leadership to the rest of Canada, the federal government will need to ensure adequate participation by federal entities.

6.4 From the recent sustainable development strategies and other documents tabled in Parliament, it remains very difficult to get a clear picture of the federal government's response to climate change. We continue to believe that Parliament's ability to provide effective oversight is hampered by the continued lack of consolidated summary-level reporting to Parliament on both the federal government's and Canada's response to climate change.

6.5 Despite the progress made to date, the federal government still needs to do a great deal of work to engage partners to take action on climate change. Given the important health, economic, environmental, and social benefits of taking action, we believe Canada cannot afford to let its efforts to date fall by the wayside.

Background and other observations

6.6 International scientists claim that greenhouse gas emissions will have to be cut by more than half by the end of the century to avoid some of the more severe impacts of climate change. In Canada, these impacts could include adverse effects on Canada's North, agriculture and agri-food, forestry, and fisheries, as well as increases in floods, droughts, forest fires, and severe storms.

6.7 In December 1997, Canada and 160 other countries adopted the Kyoto Protocol that established Canada's Kyoto target. Canada signed the Kyoto Protocol in April 1998. Like most other developed countries, it has not yet ratified the Protocol. Decisions on some key mechanisms or tools and other issues of the Protocol have not been finalized and are the subject of ongoing international negotiations. During the interim between signature and ratification, countries are obliged under international law to refrain from doing anything to frustrate the intent of the Protocol. Once this Protocol enters into force, it will legally bind countries who have ratified it to meet their greenhouse gas emission commitments.

Environment Canada and Natural Resources Canada responded to our recommendation and agreed to annually review the participation of federal entities in the Leadership Challenge component of the Federal House-in-Order Strategy. In their joint comment on our climate change follow-up work, Environment Canada and Natural Resources Canada outlined some of the government's recent accomplishments and acknowledged that there are a number of important matters that remain unresolved.

Energy efficiency

6.8 Natural Resources Canada (NRCan) has made satisfactory progress in addressing our 1997 recommendations associated with its energy efficiency initiatives. Since then, NRCan has provided greater clarity in the performance expectations for these initiatives, made considerable progress in measuring and assessing their performance, and significantly increased its efforts to link changes in energy use to changes in greenhouse gas emissions. It has also provided improved performance information in its reporting to Parliament on these initiatives.

Background and other observations

6.9 The production and consumption of fossil fuels such as oil, natural gas, and coal (the main sources of energy in Canada) cause most of Canada's greenhouse gas emissions. Using energy more efficiently will generally help reduce these emissions.

6.10 In our 1997 audit of energy efficiency, we concluded that NRCan's performance information, on both expectations and achievements, was not sufficient to determine the overall success of its energy efficiency initiatives in terms of the contribution they were making to Canada's climate change

commitments. We also identified opportunities to enhance the transparency of the energy efficiency initiatives and departmental accountability by better reporting to Parliament on expectations and achievements.

Preface

6.11 Climate change refers to a change in the climate or average weather that a given region experiences over a period of time. International scientists are increasingly concerned that human activities have increased the concentration of greenhouse gases in the atmosphere and that these are possibly linked to climate change. They claim that greenhouse gas emissions will have to be cut by more than half by the end of the century to prevent dangerous human-induced interference in the climate system.

6.12 The rate and magnitude of long-term changes have many implications for the ecosystem. Given the potential costs and impacts of doing nothing—adverse effects on Canada's North, agriculture and agri-food, forestry, and fisheries, as well as increases in floods, droughts, forest fires, and severe storms—climate change is a challenge that needs to be addressed. It is a global challenge that requires a global response, as some of these impacts are already being felt.

6.13 The federal government believes that addressing climate change is one of the greatest environmental and economic challenges ever undertaken by Canada and other countries. Climate change also has significant implications for sustainable development. Canada's response requires the co-operation of all levels of government, given that environmental matters are shared among jurisdictions.

6.14 A key component of Canada's response to climate change is increasing energy efficiency. Using less energy can also provide certain secondary or co-benefits such as reducing pollutants that cause smog and acid rain.

Focus of the follow-up

6.15 Our follow-up outlines the work Environment Canada and Natural Resources Canada undertook to address the observations and recommendations of the following two audits:

- Responding to Climate Change—Time to Rethink Canada's Implementation Strategy, 1998 Report of the Commissioner of the Environment and Sustainable Development, Chapter 3; and
- Natural Resources Canada—Energy Efficiency, 1997 Report of the Auditor General, Chapter 10.

6.16 We are reporting on our follow-up of these two audits together because the production and consumption of fossil fuels such as oil, natural gas, and coal (the main sources of energy in Canada) cause most of Canada's greenhouse gas emissions. Using energy more efficiently will generally help reduce these emissions.

6.17 Further details on the objectives and scope of our work are in About the Follow-up at the end of this chapter.

Climate Change

Introduction

The 1998 audit issues

6.18 Our 1998 audit of climate change reviewed the federal government's management of the implementation of Canada's domestic policy commitments on climate change. We felt that its failure to meet Canada's climate change commitments had been mainly the result of poor planning and ineffective management. We suggested that it was time to rethink Canada's implementation strategy.

6.19 In its response to our 1998 chapter, Natural Resources Canada (NRCan) committed to take the lead in developing and co-ordinating Canada's domestic implementation strategy. Environment Canada committed to lead the development of Canada's international agenda on climate change. The response also indicated that the federal government was taking steps to establish a new national climate change process that would, among other things, guide the development and implementation of a national public awareness and education program on climate change.

Canada's commitments

6.20 In 1992 Canada signed and ratified the United Nations Framework Convention on Climate Change (FCCC). The ultimate objective of the FCCC is the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human-induced interference with the climate system. Under the convention, the interim objective was for Annex I parties (mainly developed and Eastern European countries—see Appendix A) to aim to reduce their greenhouse gas emissions to 1990 levels by the year 2000. The FCCC also obligated Canada to create programs that would support improved understanding of climate science and impacts and facilitate the development of adaptation strategies for climate change. The parties to the FCCC agreed to hold follow-up meetings, referred to as the Conferences of the Parties, to assess their progress toward the FCCC's objectives. The FCCC came into force in 1994, and all countries that ratified it became legally bound by its provisions.

6.21 In December 1997, at the Third Conference of the Parties (CoP 3), Canada and 160 other countries adopted the Kyoto Protocol. This Protocol, once in force, would legally bind most Annex I parties to greenhouse gas emission obligations. These include a commitment by Canada to reduce emissions of certain greenhouse gases to six percent below 1990 levels in the commitment period 2008 to 2012 (Canada's Kyoto target). The Protocol includes mechanisms or tools to assist parties in meeting their commitments. Canada signed this Protocol in April 1998 to demonstrate its commitment to moving forward, domestically and internationally, on meeting its minus-six-

percent goal. In the interim between signature and ratification, countries are obliged under international law to refrain from doing anything to frustrate the intent of the Protocol.

6.22 In October 1999, the federal Speech from the Throne reaffirmed that Canada would work with other governments and citizens to meet Canada's commitment under the Kyoto Protocol to reduce greenhouse gas emissions. The January 2001 federal Speech from the Throne announced that the government will ensure that Canada does its part in reducing greenhouse gas emissions and will work with its provincial and territorial partners to carry out the First National Climate Change Business Plan (see paragraph 6.39). The federal government has also repeatedly stated that Canada intends to achieve the majority of its emission reductions at home because of the economic, competitiveness, and clean air benefits.

Canada's greenhouse gas emissions increasing

6.23 In our 1998 audit, we noted that total Canadian greenhouse gas emissions in 1995 (the most recent year for which data were then available) were about 9 percent higher than in 1990. We also reported that, in 1997, NRCan estimated that greenhouse gas emissions could increase to about 11 percent above 1990 levels by the year 2000.

6.24 Federal officials have informed us that total emissions of all greenhouse gases in 1999 (the most recent year for which data are now available) were 15 percent above 1990 levels.

6.25 Changes in emissions vary widely among sectors of the Canadian economy. For example, Environment Canada reported that for 1998, emissions in the industrial processes, manufacturing, and construction sectors were slightly below 1990 levels, whereas emissions in the electricity (including the energy industries) and transportation sectors were significantly above 1990 levels—28 and 20 percent respectively.

International developments since 1998

6.26 Since our 1998 audit there have been three additional Conferences of the Parties to the FCCC. In November 2000, the first part of the Sixth Conference of the Parties (CoP 6) was held in The Hague, Netherlands. Decisions on some key issues of the Protocol, such as an international emissions trading system, a clean development mechanism to help developing countries reduce their greenhouse gas emissions, rules for counting emission reductions from carbon sinks, a compliance regime, and assistance to developing countries, were unresolved at that time. (We have provided a description of selected Kyoto issues in Appendix B.) CoP 6 resumed in Bonn, Germany in July 2001 where a broad political agreement on the rules to implement the Protocol was reached. The parties also developed some detailed decisions on the political agreement. However, several other decisions still require some additional work to be translated into legal text. These are expected to be finalized and adopted at CoP 7, as a package with

the decisions developed in Bonn. CoP 7 is to take place in Marrakech, Morocco from 29 October to 9 November 2001.

6.27 Eighty-four countries had signed the Kyoto Protocol by 9 May 2001. Thirty-four countries, mainly small island states and developing countries and one Annex I party, Romania, had ratified the Protocol (see Appendix C). Canada and other parties to the FCCC are still negotiating the rules of the Protocol prior to the ratification by other Annex I parties. These rules will determine how governments and industry will work together to achieve the Kyoto targets.

The science of climate change

6.28 The Intergovernmental Panel on Climate Change (IPCC) is a United Nations body established in 1988 to provide authoritative, international, and science-based assessments of the state of knowledge about climate change. In January 2001, it released the science contribution to its Third Assessment Report. The IPCC now states that in the light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the last 50 years is likely due to the increase in greenhouse gas concentrations caused mainly by burning fossil fuel.

6.29 The federal government's current position is that the science behind climate change is increasingly compelling, and the human impacts are increasingly evident. It believes that the scientific understanding of climate change is sound and leaves no doubt that it is essential to take action now to reduce greenhouse gas emissions. The government acknowledges the need to better quantify impacts on different sectors and regions of Canada, provide a basis for decisions on adaptation measures, and identify areas to reduce emissions further.

Canada's strategy for dealing with climate change has evolved

6.30 During our 1998 audit, the federal government had begun to recognize the need to enhance its relationship with other jurisdictions in Canada and with stakeholders to better deal with the climate change issue. Accordingly, the Government of Canada set as a main objective an inclusive process of engagement with interested parties that would result in commitments from all appropriate parties to take action on climate change.

6.31 In December 1997, one day after Canada adopted the Kyoto Protocol, the first ministers directed their ministers of energy and the environment to establish a national climate change process. The process was to examine the impacts, costs, and benefits of carrying out the Protocol and the various implementation options open to Canada.

6.32 As a first step in this national process, the federal government established the Federal Climate Change Secretariat in February 1998, although it was not fully operational until later in the year. The 1998 federal Budget announced the Climate Change Action Fund (CCAF) to support projects and studies that would help Canada meet its commitments in the

Kyoto Protocol. The Federal Secretariat was to co-ordinate the federal effort and manage the CCAF, which has four components that are described in Appendix D.

6.33 At the April 1998 Joint Meeting of Ministers of energy and the environment from federal, provincial, and territorial governments, ministers approved the creation of a National Climate Change Secretariat. The National Secretariat manages and supports the national engagement process and the development of Canada's national implementation strategy as part of Canada's response to climate change. The Secretariat consists of representatives from federal and provincial governments and operates as a virtual office with staff working from their existing locations.

6.34 Central to the national climate change process was the creation of 16 issue tables/working groups comprising 450 participants from federal, provincial, territorial, and municipal governments; industrial sectors and businesses; the academic community; and environmental groups. From 1998 to 2000, each table and group identified, analyzed, and assessed implementation options for its designated issue. Appendix E provides a list of these issue tables and working groups and their respective mandates.

6.35 New federal action plan. The Government of Canada Action Plan 2000 on Climate Change was released on 6 October 2000. Action Plan 2000 reflects the Government of Canada's contribution to the First National Climate Change Business Plan (see paragraph 6.39) and its intention to work with provincial and territorial governments and stakeholders to fine-tune measures and to seek partnerships and contributions. Action Plan 2000 indicates that it targets key sectors and, when fully carried out, is intended to take Canada a third of the way toward its Kyoto target. The federal government has stated that contributions from the provincial and territorial governments to the National Implementation Strategy will take Canada even closer to its goal. Action Plan 2000 indicates that actions in future plans will address the rest of Canada's Kyoto target.

6.36 National Implementation Strategy agreed to. The options from the issue tables and working groups served as a basis for developing a national implementation strategy, and the first national business plan to implement the strategy, as part of the national response to climate change. On 17 October 2000, ministers of energy and the environment from the federal government and all provinces and territories, except Ontario, agreed on Canada's National Implementation Strategy on Climate Change.

6.37 The National Implementation Strategy (NIS) identifies different phases of progressive action. Phase One is expected to remain in effect until Canada ratifies an international agreement with climate change commitments. The NIS describes this phase as supporting actions that are the most cost-effective while delivering important health, economic, environmental, and social benefits, and laying the groundwork and building momentum for further action.

6.38 According to the NIS, future phases depend on Canada's decisions about its response to climate change and the nature of international commitments. The NIS also states that the decision to move to Phase Two is linked to greater international certainty of the ratification of the Kyoto Protocol, the actions of Canada's major trading partners, and greater domestic clarity on the major policy approaches and actions required to carry out an agreement. For example, if Canada ratifies the Kyoto Protocol, Phase Two is expected to cover the period from ratification until the beginning of the first commitment period, in 2008. Phase Three is expected to cover Canada's commitment period (2008–12), reducing emissions further and responding to evolving domestic and international circumstances. If the ultimate objective of the FCCC is to be attained, future phases will be needed to address future commitment periods.

6.39 First National Climate Change Business Plan launched. On 17 October 2000, ministers of energy and the environment from the federal government and all provinces and territories, except Ontario, also agreed on Canada's First National Climate Change Business Plan. This National Business Plan focusses on five themes: to enhance awareness and understanding, to promote technology development and innovation, to lead by example, to invest in knowledge and build the foundation, and to encourage action. Each theme contains a series of objectives and actions that have been approved, are being considered, or are already in place. Actions by all jurisdictions, except Ontario and Quebec, are included in the Plan. When this National Business Plan was announced, some jurisdictions (British Columbia, Ontario, and Quebec) provided details of their actions in documents appended to the Plan.

6.40 The National Business Plan notes that it will evolve annually and look forward on a three-year basis. As each year of the Plan is completed, an additional year will be added. The ministers of energy and the environment are expected to approve a second business plan in 2002.

Observations and Recommendation

6.41 Since our 1998 audit, Canada's overall greenhouse gas emission curve has not moved downward. In the last three years, the gap related to achieving Canada's Kyoto target has widened and the time for achieving it has narrowed, making the target even harder to reach. The National Business Plan indicates that, in the absence of new (post-1999) policy and program initiatives by Canadian governments, Canada would need to reduce greenhouse gas emissions by 25 percent to meet its Kyoto target by 2010. Because of the time lag in obtaining the necessary information on Canada's greenhouse gas emissions, it is too early to tell whether recent changes in Canada's implementation strategy on climate change will affect the direction of these emissions. However, the Government of Canada projects that once Action Plan 2000 is fully carried out, Canada will still need to reduce its greenhouse gas emissions by 18 percent to meet its Kyoto target.

Federal leadership has increased but many areas are under development

6.42 Changes made in the management structure but roles and responsibilities not defined. We noted that Canada has revised its management process for dealing with climate change. The first ministers directed the ministers of energy and the environment to establish a new national climate change process. This included the creation of a National Climate Change Secretariat to co-ordinate the process. Outputs from the national climate change process included the National Implementation Strategy and the National Business Plan, agreed to by 13 of 14 jurisdictions, the exception being Ontario.

6.43 A Federal Climate Change Secretariat was set up within the federal government. The head of this Federal Secretariat reports to the deputy ministers of Environment Canada and Natural Resources Canada (NRCan), as the ministers of these two departments continue to co-manage the federal response to climate change. Unlike in 1998, both Environment Canada and NRCan now provide information on the nature of their co-leadership role in departmental documents submitted to Parliament. For example, each states in its 2000–01 *Report on Plans and Priorities* and *Performance Report* for the period ending 31 March 2000 that they co-manage the federal initiatives under the Climate Change Action Fund (CCAF), an important program for addressing climate change. They also play a lead role in developing Canada's climate change strategy.

6.44 In our 1998 chapter, we noted that the roles and responsibilities of other federal players had not been specified. We described the Interdepartmental Assistant Deputy Ministers Core Committee on climate change and noted that it did not have documented terms of reference. Three new members were added to this committee since our 1998 audit. The federal Deputy Ministers Steering Committee on climate change was established in 1998. Government officials gave us a copy of the terms of reference for these two committees. These referred only to the roles and responsibilities of the federal players as they relate to the CCAF and did not include other federal climate change activities. The terms of reference did not list the departments and agencies that made up the committees, but government officials gave us a list of the memberships (see Exhibit 6.1). The roles and responsibilities of federal departments and agencies for the CCAF are stated in a series of memoranda of understanding between the Federal Climate Change Secretariat and various departments and agencies.

6.45 In their 2001–02 reports on plans and priorities, both NRCan and Environment Canada refer to their role in managing and carrying out the Government of Canada Action Plan 2000 on Climate Change in co-operation with others. We also reviewed the 2001–02 reports on plans and priorities for the other nine operating entities participating on the Deputy Ministers Steering Committee on climate change to obtain information on their roles and responsibilities for Action Plan 2000. This review excluded the Privy Council Office and the Treasury Board Secretariat (which are not among the operating agencies) and the Federal Climate Change Secretariat

(which does not report to Parliament directly). Except for Transport Canada, we found no clear indication of the roles and responsibilities of these entities in carrying out Action Plan 2000.

Exhibit 6.1 Membership of federal climate change committees

Organization	Interdepartmental Assistant Deputy Ministers Core Committee on Climate Change	Deputy Ministers Steering Committee on Climate Change	Interdepartmental Assistant Deputy Ministers Management Committee ¹
Co-leaders			
Environment Canada	✓	✓	✓
Natural Resources Canada	✓	✓	✓
Others			
Agriculture and Agri-Food Canada	✓	✓	✓
Canadian International Development Agency	✓	✓	
Department of Finance	✓	✓	✓
Department of Foreign Affairs and International Trade	✓	✓	✓
Department of Justice	✓ ²		
Federal Climate Change Secretariat	✓	3	✓
Fisheries and Oceans	✓ ²		
Health Canada	✓ ²	✓	
Indian and Northern Affairs Canada			✓
Industry Canada	✓	✓	✓
National Defence		✓	
Privy Council Office	✓	✓	✓
Public Works and Government Services Canada		✓	
Transport Canada	✓	✓	✓
Treasury Board Secretariat	✓	✓	

Notes

¹ This committee is responsible for the overall management of the Government of Canada Action Plan 2000 on Climate Change. Committee membership can be expanded to include other government departments as required to address specific departmental issues.

² Joined Committee after our 1998 audit.

³ Attends the committee meetings as part of its co-ordinating role in domestic implementation for climate change.

6.46 With the development of Action Plan 2000, the management structure for the federal response to climate change continues to evolve. The ministers of Environment Canada and NRCan will have lead responsibility and accountability for carrying out the Action Plan in collaboration with five other line ministers (Agriculture and Agri-Food, Foreign Affairs and International Trade, Indian and Northern Affairs, Industry, and Transport). The Federal Climate Change Secretariat, which has an oversight function in managing the Action Plan, plans to set up a series of memoranda of understanding with federal departments. The memoranda of understanding are expected to include a description of the roles, responsibilities, and accountabilities for programs and activities funded by the Action Plan.

6.47 Overall management of Action Plan 2000 will be the responsibility of the Interdepartmental Assistant Deputy Ministers Management Committee (IMC). The IMC is expected to report regularly on the Action Plan's progress and performance. The Directors General Operations Committee will report to the IMC and will have membership common to both the Action Plan and the CCAF, providing a link between the two initiatives (see Exhibit 6.1).

6.48 In our opinion, while changes have been made to the management structure, its effectiveness cannot yet be determined in terms of achieving the desired result of reducing Canada's greenhouse gas emissions. While federal players are becoming increasingly involved in the climate change issue, their roles and responsibilities have not been clearly defined in writing.

6.49 A federal-provincial/territorial framework agreement has not been finalized. In 1998 we reported that a federal-provincial/territorial co-ordinating framework and a related national co-ordinating mechanism were in place. However, we noted that there were no clear and transparent agreements or arrangements between the federal government and the provinces and territories that specifically defined their respective roles and responsibilities for achieving Canada's climate change commitments.

6.50 The national co-ordinating mechanism has not changed significantly since our audit. However, at the March 2000 Joint Meeting of Ministers of energy and the environment, ministers directed officials to draft a high-level agreement that would formalize the nature of the federal, provincial, and territorial partnership for responding to climate change. A draft federal-provincial/territorial framework agreement on climate change was discussed at the October 2000 Joint Meeting of Ministers. All the ministers, except those from Ontario, agreed to submit the draft framework agreement on climate change for approval by their respective governments in order to ratify it at the next Joint Meeting of Ministers.

6.51 At the time of writing, this agreement had not been finalized. Hence, there was still no written agreement between the federal and provincial/territorial governments on specific roles and responsibilities in achieving Canada's climate change commitments.

6.52 Financial support has increased considerably. Over the years, several federal departments have had various programs that have contributed to

Canada's response to climate change. Programs have focussed on information, public education, direct spending, tax programs, and research and development. Since our 1998 audit, the federal government has adopted or announced several new domestic measures to address climate change and other air issues as well as to promote energy efficiency in Canada. These new measures involve additional spending of about \$1 billion (see Exhibit 6.2).

Exhibit 6.2 Major new domestic federal spending initiatives on climate change and energy efficiency

Funding*	Description
February 2000 Federal Budget	
\$150 million (\$50 million per year for three years beginning in April 2001)	To extend the Climate Change Action Fund (CCAF). Initially announced in the February 1998 Budget with a funding level of \$150 million (\$50 million per year for three years beginning in April 1998).
\$60 million (\$20 million per year for three years beginning in April 2001)	To extend funding for four energy efficiency and renewable energy programs: Commercial Building Incentive Program, Energy Innovators Plus, EnerGuide for Houses, and Renewable Energy Deployment Initiative. Initially announced in the February 1997 Budget with a funding level of \$60 million (\$20 million per year for three years beginning in April 1998).
\$25 million (over five years)	To establish a Green Municipal Enabling Fund: a five-year endowment fund to help support or cost-share feasibility studies of projects designed to reduce greenhouse gas emissions and improve air and water quality, as well as to encourage the sustainable use of renewable and non-renewable resources. To be administered through the Federation of Canadian Municipalities. The funds will operate at arm's length from the federal government.
\$100 million	To establish a Green Municipal Investment Fund: an endowment fund to operate in perpetuity to provide loans, loan guarantees, and grants to enable recipients to carry out direct energy efficiency measures such as retrofitting of buildings and public transit systems, which will result in reduced greenhouse gas emissions. To be administered through the Federation of Canadian Municipalities. The funds will operate at arm's length from the federal government.
\$100 million	To establish the Sustainable Development Technology Fund: a fund to focus on environmental technologies, in particular, those for climate change and air quality solutions. To be administered through a separate not-for-profit organization (the Canadian Foundation for Sustainable Development Technology), which will operate at arm's length from the federal government.
\$60 million	To establish the Canadian Foundation for Climate and Atmospheric Sciences to carry out science research in climate change, extreme weather, and air quality. To be administered through a separate not-for-profit corporation (the Canadian Foundation for Climate and Atmospheric Sciences), which will operate at arm's length from the federal government.
\$15 million	To provide funds to expand federal purchases of "green power" (power generated in a sustainable fashion from renewable energy sources).
October 2000 Economic Statement	
\$500 million (over five years)	Government of Canada's contribution to the First National Climate Change Business Plan, as part of the National Implementation Strategy on Climate Change, to reduce greenhouse gas emissions by investing in specific actions.
\$1.01 billion	TOTAL

*Excludes existing funding to federal departments and tax expenditure measures.

6.53 One of these measures was the extension of the Climate Change Action Fund (CCAF). It was to build a policy foundation and to initiate early action for initiatives related to climate change. The 1998 federal Budget provided the CCAF with \$50 million a year over three years beginning in April 1998. The Fund was extended for an additional three years at \$50 million per year as announced in the 2000 Budget—a total of \$300 million over six years. Where possible, the CCAF provides for leveraging and cost sharing with provinces, municipalities, and the private sector. Through the Fund, the government has undertaken, among other things, initiatives to raise Canadians' awareness of climate change and of actions they can take to reduce emissions. On behalf of the Federal Climate Change Secretariat, NRCan is conducting a midterm evaluation of the four components of the CCAF (see Appendix D). NRCan expects to complete its evaluation by August 2001.

6.54 Four other funds or foundations were part of the 2000 Budget: Green Municipal Enabling Fund, Green Municipal Investment Fund, Sustainable Development Technology Fund, and the Canadian Foundation for Climate and Atmospheric Sciences (see Exhibit 6.2). The federal government has allocated \$285 million to these funds and foundations to address the challenges of climate change as well as other issues such as air and water quality. The government has stated that these funds or foundations will operate at arm's length from the federal government. We refer to this as a delegated arrangement—where program management has shifted to an organization outside the government.

6.55 Our Office is currently auditing the governing frameworks that the sponsoring departments have put in place for these four environmental funds to determine whether they contain appropriate elements of reporting, accountability, transparency, and protection of the public interest. We will include the results of this audit in the April 2002 Report of the Auditor General. We are also auditing the CCAF as part of a government-wide audit of grants and contributions, the results of which will be included in the December 2001 Report of the Auditor General.

6.56 **New Federal House-in-Order Strategy has been announced, leaving participation voluntary for many federal entities.** Federal departments and agencies are working to get their own house in order to reduce their greenhouse gas emissions. As noted in our 1998 audit, the federal government issued its first plan to reduce greenhouse gas emissions in 1995. This plan, Emission Reductions from Federal Operations, called for reductions of at least 20 percent from 1990 levels by 2005. The federal government submitted this plan to the Climate Change Voluntary Challenge and Registry (VCR) Program in 1995. The VCR Program, now operated through a not-for-profit corporation (Canada's Climate Change Voluntary Challenge and Registry Inc., or VCR Inc.), challenges organizations in all sectors of the economy to voluntarily accept greater accountability for their greenhouse gas emissions. It maintains a public registry that records the actions planned and executed by the registrants.

6.57 As part of the Government of Canada Action Plan 2000 on Climate Change, Environment Canada and NRCan are co-leading the development of a new Federal House-in-Order Strategy to reduce greenhouse gas emissions from federal operations. A stated objective of this strategy is to demonstrate environmental leadership to the rest of Canada (that is, all other levels of government and all sectors of the economy). Action Plan 2000 states that since 1990 the federal government has already reduced its greenhouse gas emissions by 19 percent and that by 2010 it will reduce its emissions by another 12 percent—a total of 31 percent from 1990 levels. The federal government has assigned specific targets to 11 key departments and agencies responsible for 95 percent of greenhouse gas emissions in federal departments and agencies. These 11 entities will be required to report on their progress annually in their departmental performance reports. At the time of writing, the federal government had not announced specific departmental targets for reducing greenhouse gas emissions (see paragraph 6.91).

6.58 In 1998 we noted that the plan the federal government had submitted to the VCR Program in 1995 excluded Crown corporations; they are responsible for submitting their own action plans, if they choose to participate. Almost all Crown corporations could contribute to reducing greenhouse gas emissions in their own operations—for example, by green procurement and waste recycling and by improving energy efficiency in their own operations. Only two Crown corporations had submitted action plans to VCR Inc. by early May 2001—Atomic Energy of Canada Limited and Via Rail Canada Inc. Although Via Rail is listed in VCR Inc.'s challenge registry, it provided the same information as The Railway Association of Canada.

6.59 The new Federal House-in-Order Strategy, like its 1995 predecessor, also excludes Crown corporations as part of the target-setting exercise. However, Crown corporations have been included in the Leadership Challenge component of the new strategy. This component of the strategy will challenge all other federal entities, which have not been assigned specific targets, to voluntarily reduce their greenhouse gas emissions. All federal entities will be invited through their responsible minister to subscribe to the House-in-Order initiative via a letter to be sent by the lead ministers (Environment and Natural Resources).

6.60 Through a standard commitment document, any department, agency, or Crown corporation that voluntarily participates will agree to undertake a program of its own design, based on a code of best practices, and to report progress annually. Decisions on specific courses of action, timetables, and standards will rest with the individual departments, agencies, and Crown corporations. These entities will report on progress in their organization's departmental performance reports (or, in the case of Crown corporations, in their annual reports). All participating entities will be provided with a reporting template for guidance.

6.61 The federal government expects 25 federal entities to join the Leadership Challenge in fiscal year 2001–02. By 2005–06, it expects that 75 percent of all federal entities will have joined the Leadership Challenge.

6.62 Given the voluntary nature of the Leadership Challenge, it will be important for the federal government to monitor closely the participation of federal entities that are not part of the target-setting exercise. If such federal entities fail to accept the invitation to participate in the Federal House-in-Order Strategy, the federal government will have missed an opportunity to demonstrate environmental leadership to the rest of Canada—the stated objective of the strategy.

6.63 Recommendation. To demonstrate environmental leadership, the federal government should monitor which federal entities are not participating in the Leadership Challenge component of the Federal House-in-Order Strategy and, based on the nature and size of their operations, assess whether this is reasonable or whether an alternative course of action is required.

Environment Canada's and Natural Resources Canada's response: As part of the Leadership Challenge, Environment Canada and Natural Resources Canada will annually review the number of departments, agencies, and Crown corporations that have signed on to the Leadership Challenge.

Information is currently being compiled on the size and nature of the operations of all federal entities. Those with significant greenhouse gas emissions that have not committed to a plan of action will be encouraged through the Leadership Challenge Office at Environment Canada to implement a strategy to reduce emissions and report on these efforts annually.

The Leadership Challenge Office will work with federal entities to develop a plan of action that suits the size and nature of their operations.

When necessary, senior management at Environment Canada and Natural Resources Canada will encourage their colleagues in other federal entities to participate in the Leadership Challenge.

Working toward broad participation

6.64 As part of the national climate change process, 16 issue tables/working groups were established by July 1998. With funding from the foundation analysis component of the Climate Change Action Fund, these issue tables/working groups first prepared foundation papers that analyzed the status of their respective sectors or issues, including challenges and opportunities. Then they developed options reports consisting of sector-specific and cross-cutting analyses that identified opportunities and barriers for reducing greenhouse gas emissions. These reports identified reduction and adaptation options for consideration in the development of Canada's national implementation strategy on climate change.

6.65 In June 2000, a discussion document on certain options presented by the issue tables was published. This document consisted of those options suitable for Phase One of the National Implementation Strategy on Climate Change. It served as reference material for national stakeholder sessions on climate change that took place in major cities across Canada during the summer of 2000. These sessions sought input from a regional perspective on

the proposed objectives and actions (based on the options reports of the issue tables) to implement a national business plan.

6.66 Increased emphasis on public education but too early to determine whether this will meet the commitment to a national program. In 1998 we commented on Canada's commitment to a national public awareness and education program on climate change. We indicated that numerous information programs were not considered an adequate substitute for such a national program, since they were designed to support specific actions rather than to raise awareness in general. We concluded that this national program had not yet been delivered. Since then, the federal government and the national climate change process have undertaken a number of related initiatives. Appendix F shows some new sources of information on climate change.

6.67 A component of the Climate Change Action Fund (CCAF) is public education and outreach, which is expected to motivate positive behavioural change. It consists of two parts. One part supports the distribution of information to build the public's awareness and understanding of climate change and to influence Canadians to take more action. Information distributed to date has included publications and information kits, a climate change Web site, newspaper supplements, and print and radio advertising.

6.68 The second part provides funding to support projects that emphasize taking early action to reduce greenhouse gas emissions. The CCAF's public education and outreach has funded many projects. By 5 January 2001, over 150 projects had been approved to receive federal contributions from the CCAF totalling over \$17 million. The contributions were used to support actions the public can take to reduce greenhouse gas emissions and to increase its understanding of the Kyoto Protocol and Canada's implementation actions. This support is additional to other federal contributions from departmental program funds and from partners outside the federal government.

6.69 As previously noted, a theme for the National Business Plan is enhancing awareness and understanding. As a key method of implementation, the federal and provincial governments and non-government and private sector partners are establishing a co-ordinated national network and regional hubs or centres that will focus on raising the public's awareness of climate change. It is too early to determine whether this will meet the commitment to a national public awareness and education program on climate change and lead to the desired behavioural change.

Gaps in the modelling of impacts of climate change measures need to be addressed

6.70 In 1998 we reported that work had been done in Canada on identifying various options that could be used to respond to climate change. However, federal and provincial/territorial governments could not reach agreement on a broad portfolio of measures designed to achieve Canada's climate change commitments.

6.71 As part of the national climate change process, the Analysis and Modelling Group (AMG) conducted an integrated analysis of the economic and environmental implications of achieving Canada's Kyoto target. This is called the roll-up analysis. The main objective of the AMG was to provide policy makers with "order of magnitude" guidance on some fundamental issues for achieving the Kyoto target.

6.72 The roll-up analysis involved evaluating the integrated impact of the options analyzed by the other issue tables/working groups, along with other paths or policy packages to attain the Kyoto target. A federal-provincial committee, the National Air Issues Co-ordinating Committee, specified these other paths. Over 100 issue table measures or options were used in the roll-up analysis. The analysis considered the impacts, under different scenarios or sets of assumptions, of possible decisions about the Kyoto mechanisms (or tools) and the consequent response of Canada's trading partners, in particular, the United States.

6.73 The AMG published its findings in November 2000. The report cautions the reader not to view the roll-up results as a plan of action for carrying out the Kyoto Protocol. It notes that the findings are too general and many of the major assumptions are too speculative for such an interpretation.

6.74 The AMG analysis provides some important insights into the economic and environmental implications of achieving the Kyoto target. For example, the findings suggest the potential for substantial variability in impacts on gross domestic product across industries. They suggest that the greatest potential for reducing emissions appears to reside in the electricity generation sector. The AMG findings also indicate that measures and actions to achieve the Kyoto target will reduce sulphates, ozone, and other atmospheric pollutants. This reduction will lead to additional benefits by improving air quality and human health.

6.75 In its report, the AMG identified gaps in its understanding and areas where future analysis could yield useful insights. It cited the need for the following:

- greater effort to measure welfare benefits and costs;
- a better understanding of the impacts on Canada's competitiveness;
- more analysis of the implications of the various approaches to the design of an emissions trading system;
- more province-specific analysis; and
- further analysis of the quantitative co-benefits of improved air quality associated with the actions to reduce greenhouse gas emissions.

6.76 As a result of the October 2000 Joint Meeting of Ministers of energy and the environment, the ministers directed that, among other things, analytical work continue to address many of the gaps and examine possible provincial/territorial or sectoral allocation of any Canadian target. The work was also to examine how any resulting burden would be shared.

6.77 In our opinion, given the general and speculative nature of the AMG findings, more work needs to be done to obtain a clearer understanding of the impacts, including costs and benefits, of potential measures for addressing climate change.

Some progress on identifying a broad portfolio of measures, but much remains to be done

6.78 In 1998 we stated that the federal government had an extensive range of policy instruments within its own jurisdiction that it could use to meet its policy objectives. We also noted that it had chosen to employ only a limited number of policy measures and had favoured voluntary measures. We recommended that the federal government, in consultation with other levels of government and major stakeholders, increase its efforts to develop a federal portfolio of measures to help meet Canada's climate change commitments. We also recommended that the federal government, together with other levels of government and major stakeholders, make a concerted effort to reach agreement on a broad national portfolio of measures designed to achieve Canada's climate change commitments.

6.79 The federal government has made some progress in identifying the federal portfolio of measures it plans to take to help meet Canada's climate change commitments. The Government of Canada Action Plan 2000 on Climate Change identifies actions that either build on existing federal government measures or represent new measures. The co-operation of other levels of government and other stakeholders is generally required to fully implement the measures.

6.80 Action Plan 2000 outlines expected reductions in greenhouse gas emissions by various sectors of the Canadian economy in order to take Canada a third of the way toward its Kyoto target. It does not provide any targets or performance expectations for the individual measures within each sector that would make it possible to assess future performance. However, the federal government is finalizing performance expectations for these individual measures. It is too early to determine whether these measures, when fully carried out, will take Canada a third of the way toward its Kyoto target, as the government anticipates. The remaining two thirds of the target await future developments.

6.81 While the National Business Plan provides objectives and actions and, in most cases, an implementation timeframe, most of the actions are stated in general terms, such as "increase awareness" or "reduce emissions." They do not include clear and concrete targets or expected performance against which government officials can monitor and assess progress.

6.82 The AMG report recognizes that the Kyoto agreement would probably be implemented in Canada through a package of measures. While some elements of that package would be aimed at reducing emissions, others would be aimed at reducing the uneven impact of emissions-reductions measures across sectors and regions. While Action Plan 2000 identifies specific targets, by sector, that are intended to take Canada a third of the way toward its

Kyoto target, the sectoral or regional sharing of the full Kyoto target remains to be considered. Federal officials have indicated that the issue of fair burden-sharing will be considered over the next two years.

6.83 The AMG analysis mainly considered measures to reduce emissions. The overall impact of a complete policy package has yet to be analyzed. Thus, an agreement on a broad national portfolio of measures to achieve the full Kyoto target remains outstanding.

Reporting to Parliament still needs to be enhanced

6.84 Many federal players may be called upon to address climate change issues within their specific mandate areas and within their own operations. In our 1998 audit, we included a high-level review of the 1997 sustainable development strategies of Environment Canada and NRCan as well as other documents tabled in Parliament. We concluded that reporting to Parliament on Canada's response to climate change was fragmented and piecemeal and that summary-level information was incomplete. We expressed concern that the lack of consolidated summary-level reporting could hinder Parliament's ability to provide effective oversight of Canada's response to climate change. We recommended that the federal government enhance its reporting to Parliament on the sectoral response to climate change by assigning a lead department to prepare a consolidated, summary-level report on a periodic basis.

6.85 **Concerns about sustainable development strategies.** Following amendments to the *Auditor General Act* in 1995, federal departments and certain agencies are required to periodically submit to Parliament sustainable development strategies outlining their objectives and plans of action to further sustainable development. The first strategies were tabled in Parliament in 1997. These strategies were a first attempt by departments and agencies to systematically consider their policy, program, and operational impacts on sustainable development.

6.86 Given the increased number of departments actively engaged in the response to climate change, we decided to expand our review of the strategies in this follow-up to include all 11 operating entities participating on the Deputy Ministers Steering Committee on climate change (see paragraph 6.44 and Exhibit 6.1).

6.87 The first round of strategies followed Canada's 1992 ratification of the United Nations Framework Convention on Climate Change. However, they predated the adoption of the Kyoto Protocol, which set specific targets to reduce greenhouse gas emissions for various countries, including Canada. We noted that 8 of the 11 key operating entities made one or more references to climate change in their first strategies.

6.88 The second round of sustainable development strategies was tabled in Parliament in February 2001. A high-level review of the same 11 entities revealed that all of them referred to climate change in their current strategies.

6.89 As previously noted, Action Plan 2000 does not provide specific information on what individual departments and agencies are expected to contribute toward this plan. Similarly, the National Business Plan assigns implementation action for various activities to the federal government and to specific provinces or territories. Therefore, we expected to see in the strategies cross-references to these plans and more detailed information on the contributions of individual departments and agencies.

6.90 Although all 11 federal entities referred to climate change in their current strategies, we found that these references varied from general terms (Environment and Health) to more detailed statements (NRCan and Transport). We also found that only five departments (Environment, Finance, Industry, NRCan, and Transport) had made a cross-reference in their strategies to Action Plan 2000 or the National Business Plan. Of the five, one (Environment Canada) did not provide details on its specific contributions. The other six key entities that lacked a cross-reference provided their readers with limited information on their climate change activities. Therefore, we found it difficult to obtain a clear picture from the strategies of the federal government's response to climate change.

6.91 Our review of the current strategies revealed that of the 11 entities, all of those with a house-in-order target referred to the Federal House-in-Order Strategy (see paragraphs 6.56 to 6.63). Several other entities also made reference to this strategy. We noted that the government produced a guidance document in June 2000, *Sustainable Development in Government Operations: A Co-ordinated Approach*, to assist departments and agencies in co-ordinating their approach to, among other things, reducing greenhouse gas emissions. The document states that federal organizations will have to commit in their sustainable development strategies to meeting specific targets to reduce greenhouse gas emissions. However, no such commitments were in the February 2001 strategies. Federal officials informed us that agreement among departments and agencies on reduction targets for greenhouse gas emissions was reached in March 2001. As previously noted, these targets have not been announced.

6.92 Concerns about other documents tabled in Parliament. We reviewed the 2001–02 reports on plans and priorities and the performance reports for the year ending 31 March 2000 for the same 11 key entities. We found that these documents refer to various federal initiatives on climate change and provide general information on them. The documents do not generally provide an overview of the activities of the federal government, or Canada as a whole, on climate change. An exception is NRCan's 2000 *Performance Report*, which shows trends in greenhouse gas emissions for Canada.

6.93 The October 2000 announcements on the National Implementation Strategy (NIS) and the National Business Plan identified new reporting requirements. The NIS commits that each annually updated National Business Plan will be monitored and progress will be reported publicly. The National Business Plan states that there is a requirement to monitor progress against objectives and to report findings to stakeholders and the

public. The Government of Canada Action Plan 2000 is silent on whether or how progress to Parliament will be reported.

6.94 Enhanced reporting to Parliament still outstanding. As in 1998, there is a large amount of information on climate change that is reported to Parliament by federal entities. However, it continues to be reported in isolated segments scattered in several places throughout several documents. In our view, this fragmented and piecemeal reporting makes it difficult for Parliament to oversee the climate change sectoral activity.

6.95 There are numerous other documents prepared by federal entities that provide general information on climate change and information on Canada's related initiatives. These documents are not tabled in Parliament but are in the public domain. Appendix F lists some of these documents.

6.96 To a certain degree, the issue is not a lack of information on climate change at the operational level for various federal entities. Rather, it is a lack of information for the federal government overall, or Canada as a whole, on the federal climate change commitments. We continue to believe that to facilitate Parliament's oversight, it is important that the federal government periodically provide Parliament with meaningful and complete summary-level information on the federal government's and Canada's response to climate change, and that this be co-ordinated by a lead department. Such information will become increasingly important should Canada ratify the Kyoto Protocol.

6.97 It is too early to expect any formal reporting on progress under the NIS or the National Business Plan. We would expect the federal government to report to Parliament on Canada's response to climate change. Once the federal government has finalized performance expectations for the individual measures covered by Action Plan 2000, we would also expect it to report its progress or achievements against these expectations.

6.98 From our review of recent documents tabled in Parliament, we still do not have a clear picture of the federal government's response to climate change. Reporting to Parliament remains fragmented and piecemeal, and summary-level information is still incomplete. Therefore, we conclude that unsatisfactory progress has been made in addressing our 1998 findings in this area.

Conclusion

6.99 From 1995 to 1999, Canada's greenhouse gas emissions increased from 9 to 15 percent above 1990 levels. Over this period, the gap for achieving Canada's Kyoto target widened while the time remaining to achieve it narrowed. It is still too early to tell whether recent changes in Canada's implementation strategy on climate change will affect the direction of these emissions.

6.100 In our 1998 audit, we felt that the failure to meet Canada's climate change commitments had been mainly the result of poor planning and ineffective management. We suggested that it was time to rethink Canada's implementation strategy. Since then, the federal government has made some important progress by changing the management structure for dealing with climate change. Overall, it has shown increased leadership in Canada on the climate change issue. It has done so, in part, by establishing the national climate change process together with the provinces and territories. This process, which included broad consultation with other stakeholders, has produced Canada's National Implementation Strategy on Climate Change and Canada's First National Climate Change Business Plan.

6.101 As the federal contribution to the National Business Plan, the federal government launched the Government of Canada Action Plan 2000 on Climate Change that, when fully implemented, is expected to take Canada a third of the way to achieving its Kyoto target. However, this Action Plan lacks specific performance expectations for the individual measures. Targets for 11 specified departments and agencies under the Federal House-in-Order Strategy, an element of Action Plan 2000, have been assigned but have not been announced. Under the Leadership Challenge component of the Federal House-in-Order Strategy, all other federal entities will be invited to participate in this initiative. Given the voluntary nature of the Leadership Challenge, it will be important for the federal government to monitor closely the participation of federal entities that are not part of the target-setting exercise, in order not to miss an opportunity to demonstrate environmental leadership to the rest of Canada.

6.102 The federal government has also devoted considerable funds in recent years to its response to climate change, including \$300 million for the Climate Change Action Fund. Through this fund, the federal government has, among other things, undertaken a range of initiatives to raise Canadians' awareness of climate change and of actions they can take to reduce emissions. Although some progress has been made to promote increased public awareness and to further educate the public on climate change, it is still too early to determine whether this will meet the prior commitment for a national public awareness and education program.

6.103 Uncertainties remain. Although Canada has signed the Kyoto Protocol, and the federal government has stated its commitment to the process, ratification remains outstanding. Canada and the other parties to the United Nations Framework Convention on Climate Change are still negotiating the Protocol's rules prior to ratification. They have not finalized decisions on some key issues of the Protocol. The federal government has said that it will consider ratifying the Protocol once the international rules are agreed upon, once there have been further consultations with provinces and territories, and once there is a clearer indication of the actions other countries plan on taking. The federal government has repeatedly stated that Canada intends to achieve the majority of its emission reductions at home; therefore, resolution of international negotiations need not hold up progress on domestic action.

6.104 Although some additional analytical and modelling work has been done, many gaps remain. Further work on the economic, social, and environmental implications for Canada is required to reach an agreement on a broad federal and national portfolio of measures designed to achieve Canada's Kyoto commitments. While Action Plan 2000 identifies specific targets by sector that are intended to take Canada a third of the way toward its Kyoto target, the sectoral or regional sharing of the full Kyoto target remains to be considered. At the same time, it is important to carry out as quickly as possible the domestic actions outlined in both the federal and national plans to ensure that the improvements in the management process yield the desired results.

6.105 The federal government has missed an opportunity to demonstrate a fully co-ordinated approach to dealing with climate change in the sustainable development strategies tabled in February 2001. Only 5 of 11 key federal entities actively engaged in climate change made references to key federal and national climate change documents in their sustainable development strategies. In our opinion, the federal government still needs to provide Parliament with meaningful and complete summary-level information on both the federal government's and Canada's response to climate change to facilitate its oversight. Neither the sustainable development strategies nor other recent documents tabled in Parliament provide a clear picture of the federal government's response to climate change. Such information will become increasingly important should Canada ratify the Kyoto Protocol.

6.106 Despite the progress made to date, the federal government still needs to do a great deal of work to engage partners in dealing with the challenges of climate change. Considerable additional action is required to fully address our 1998 findings. The federal government believes that the scientific understanding of climate change is sound and leaves no doubt that it is essential to take action now to reduce greenhouse gas emissions. Given the important health, economic, environmental, and social benefits of taking action, we believe Canada cannot afford to let its efforts to date fall by the wayside.

6.107 Our assessment of progress made since our 1998 audit is summarized in Exhibit 6.3. We plan to provide future progress reports on the federal government's response to climate change.

Joint comment of Environment Canada and Natural Resources Canada:

Substantial progress has been made by Canada's federal, provincial, and territorial governments, and other stakeholders, in addressing the climate change issue. This is particularly notable considering that Canada's national climate change process was launched just three years ago, and in view of the inherent complexity of the climate change issue set against the dynamics of international and federal-provincial/territorial negotiations.

A number of important accomplishments have been realized. An effective management structure is in place at both the national and federal levels. A National Implementation Strategy and a First National Business Plan have been agreed to by







all but one jurisdiction (province) and that jurisdiction has submitted an action plan as its contribution to the National Plan.

A broad range of federal measures to reduce greenhouse gas emissions has been developed and is now being implemented. The \$1.1 billion set of programs under Budget 2000 and Action Plan 2000 together constitutes a substantial federal investment in addressing the challenge of climate change. Further measures are under active development since it is recognized that more will have to be done.




There are other important matters that remain unresolved. A federal-provincial/territorial framework agreement has not been finalized. However, significant progress has been made. Furthermore, the lack of such an agreement has not slowed progress on the National Implementation Strategy or action by jurisdictions. Reporting to Parliament on climate change on an integrated basis has not yet been formalized, but this will happen under Action Plan 2000 starting next year. Precise definition of roles and responsibilities will be completed as Action Plan 2000 is implemented.


On balance, the federal government has shown considerable leadership in addressing climate change and marshalling support from a broad spectrum of interested parties to take action on climate change. Other jurisdictions, industry, and environmental stakeholders and the Canadian public have been, and will continue to be, engaged in the development of climate change responses.

Exhibit 6.3 Summary of follow-up findings, Responding to Climate Change—Time to Rethink Canada's Implementation Strategy, 1998


1998 recommendations and observations	Our assessment	2001 follow-up comments
Federal roles and responsibilities Clarify federal roles and responsibilities for achieving Canada's climate change commitments (paragraph 3.92).		Federal leadership on climate change has generally increased, along with involvement of various federal players. However, the roles and responsibilities of these federal players in achieving Canada's climate change commitments are still being developed through a series of memoranda of understanding (paragraphs 6.44 to 6.48).
Management structure Develop an effective management structure to respond to climate change (3.93).		A new management structure has been put in place through the establishment of the federal and national climate change secretariats to develop a national implementation strategy and associated action plans. However, the effectiveness of the management structure in achieving the desired results cannot yet be determined (6.42 to 6.43, 6.46 to 6.48).
Partnering arrangement Set up a partnering arrangement between the federal and provincial/territorial governments on roles, responsibilities, and contributions in meeting Canada's climate change commitments (3.94).		A federal-provincial/territorial framework agreement has been drafted but not yet finalized (6.49 to 6.51).
Public awareness and education Develop and implement a national public awareness and education program on climate change (3.105 and 3.106).		Some progress has been made to promote increased public awareness and to further educate the public on climate change. A national network and regional hubs or centres to raise public awareness on climate change are also being established; however, it is too early to determine whether this will meet the commitment to a national public awareness and education program on climate change (6.66 to 6.69).
Costs and benefits Obtain clearer understanding of the costs and benefits of inaction in dealing with climate change, and possible measures to address climate change (3.118 and 3.119).		Additional efforts have been made, such as the issue tables/working groups. However, further analysis is required in a number of areas as identified by the Analysis and Modelling Group (6.70 to 6.77).
Federal portfolio of measures Develop a federal portfolio of measures to help meet Canada's climate change commitments (3.120).		The Government of Canada Action Plan 2000 on Climate Change is expected to take Canada a third of the way toward its Kyoto target, and performance expectations for individual measures are being finalized. Actions in future plans are expected to address the remainder of Canada's Kyoto target (6.79 to 6.82).


Summary of follow-up findings, Responding to Climate Change—Time to Rethink Canada's Implementation Strategy, 1998

1998 recommendations and observations	Our assessment	2001 follow-up comments
National portfolio of measures Obtain agreement on a national portfolio of measures designed to meet Canada's climate change commitments (3.121).		The federal government and all provinces, except Ontario, have agreed to Canada's First National Climate Change Business Plan. With respect to the full Kyoto target, sectoral or regional sharing remains to be considered, and an agreement on a broad national portfolio of measures remains outstanding (6.81 and 6.83).
Implementation plan Develop a formal, results-based implementation plan with performance expectations designed to achieve Canada's climate change commitments (3.152).		The federal government and all provinces except Ontario have agreed to a three-phased National Implementation Strategy on Climate Change. Phase One of this strategy is being implemented through the National Business Plan. However, this plan does not provide a clear indication of performance expectations to facilitate monitoring and assessment of progress (6.36 to 6.38 and 6.81).
Reporting to Parliament Enhance reporting to Parliament on the climate change activity through a consolidated, summary-level report on a periodic basis (3.162).		It remains very difficult to get a clear picture of the federal government's response to climate change from documents tabled in Parliament. Reporting to Parliament remains fragmented and piecemeal, and summary-level information is still incomplete. The Government of Canada Action Plan 2000 on Climate Change is silent on whether or how progress to Parliament will be reported (6.84 to 6.98).

 **Fully addressed.** The original audit finding has been fully addressed and there is no need to take additional action. Our Office will not follow up further.

 **Satisfactory progress.** Substantial progress has been made in addressing the original audit finding, but some additional action is still required. Our Office will do further follow-up work.

 **Some progress.** Some progress has been made in addressing the original audit finding, but considerable additional action is still required to achieve the desired results. Our Office will do further follow-up work.

 **Unsatisfactory progress.** Progress has not been made in addressing the original audit finding, and action remains outstanding. Our Office will do further follow-up work.

Energy Efficiency

Introduction

The 1997 audit issues

6.108 Our 1997 audit of Natural Resources Canada (NRCan) assessed whether the purposes of its energy efficiency initiatives were in line with government policy and departmental objectives; whether it was measuring and reporting the performance of these initiatives; and the extent to which NRCan had adopted and implemented energy efficiency measures in its own operations.

6.109 We concluded that NRCan's performance information, on both expectations and achievements, was not sufficient to determine the overall success of its energy efficiency initiatives in terms of the contribution they were making to Canada's climate change commitments. We also identified opportunities to enhance the transparency of the energy efficiency initiatives and departmental accountability by better reporting to Parliament on expectations and achievements. In addition, we noted that NRCan had begun to lay the foundation to improve the energy efficiency of its own operations.

6.110 In its response to our 1997 chapter, NRCan committed to:

- further developing performance expectations and improving the performance information on the achievements of its energy efficiency initiatives;
- expanding its efforts to assess the contribution made by its set of energy efficiency initiatives to Canada's climate change commitments; and
- improving the performance information in its reports to Parliament under the *Energy Efficiency Act*.

The state of energy efficiency in Canada

6.111 The federal government has stated that continuing to improve energy efficiency is an important part of Canada's effort to reduce greenhouse gas emissions, which contribute to climate change.

6.112 In its October 2000 report, *The State of Energy Efficiency in Canada*, NRCan indicates that in 1998, Canadians used about 9 percent more energy than in 1990 to heat and cool their homes and workplaces and to operate their appliances, vehicles, and facilities, including the energy used to generate electricity. The report also indicates that greenhouse gas emissions associated with this energy use increased by about 10 percent. NRCan attributes this increase mainly to growth in economic activity in each end-use sector of the Canadian economy (residential, commercial, industrial, transportation, and agriculture) and to changes in the mix of activities that consume energy—in

particular, a shift toward more energy-intensive industries and modes of transportation.

6.113 Still, NRCan has demonstrated analytically that the increases would have been greater if not for improvements in energy efficiency. NRCan estimates that by using energy more wisely, the Canadian economy has improved energy efficiency by six percent since 1990, resulting in greenhouse gas emissions that are five percent below what they would have been otherwise.

Office of Energy Efficiency established

6.114 Soon after the Kyoto Conference, the Minister of Natural Resources announced in December 1997 the creation of the Office of Energy Efficiency (OEE) to deliver all of NRCan's new and existing energy efficiency initiatives. The OEE was formally established in April 1998, with a mandate to renew, strengthen, and expand Canada's commitment to energy efficiency and to address the challenges of climate change, with specific emphasis on the Kyoto Protocol. The OEE is responsible for preparing the annual report, *The State of Energy Efficiency in Canada*; for organizing an annual conference on energy efficiency, the first of which was held in May 1999; and for preparing an annual report to Parliament under the *Energy Efficiency Act*.

National Advisory Council on Energy Efficiency established

6.115 The National Advisory Council on Energy Efficiency was established in 1998 to provide advice and guidance to the OEE. The Council includes energy efficiency specialists and leaders from various segments of society and all regions of the country, including provincial representation. It advises on the OEE's strategic direction in meeting federal policy objectives; on business planning and programs; on performance measurement and progress reports; and on other long-term issues. This Council has met every few months since its creation.

Energy Efficiency Index developed

6.116 To track changes in energy efficiency, the OEE has developed an Energy Efficiency Index to replace aggregate energy intensity (the ratio of gross domestic product to energy use). Energy intensity is influenced by changes in weather, in economic growth or activity, and in the mix of activities that consume energy, as well as in energy efficiency. The OEE index normalizes these influences to more closely reflect changes in energy efficiency in the Canadian economy.

Financial support increased

6.117 NRCan's expenditures on its 16 energy efficiency initiatives covered by our 1997 audit were about \$16.5 million in 1995–96. For 2001–02, the federal government has allocated \$54.5 million to the OEE. This current-year funding includes \$15.5 million in “sunset” funds for programs dealing with

commercial and residential energy efficiency. These “sunset” funds are scheduled to cease on 31 March 2004. The current-year funding also includes \$22 million annually for new and expanded measures under the Government of Canada Action Plan 2000 on Climate Change. This funding for Action Plan 2000 is scheduled to cease on 31 March 2006.

6.118 The OEE also administers temporary special funds. These include funding of \$315,000 in 2001–02 from the Climate Change Action Fund (CCAF) for public education and outreach on energy efficiency initiatives.

Energy Efficiency Regulations amended

6.119 At the time of our 1997 audit, we reported that Canada's Energy Efficiency Regulations regulated 20 residential products, accounting for 60 percent of residential energy use. Amendments to these regulations have increased the minimum energy performance levels for selected products. Also, additional residential energy-using products are now being regulated. These regulations now apply to energy-using products that account for over 75 percent of residential energy use.

Observations

6.120 The OEE has an ongoing effort to improve performance information on both expectations and achievements, based on the guidelines and criteria developed by the Office of the Auditor General.

Greater clarity in performance expectations

6.121 In our 1997 audit, we reported that many of NRCan's energy efficiency initiatives lacked clear performance expectations (information outlining the performance that is targeted or is expected to occur in the future). Since then, the OEE has identified clear and concrete performance expectations (output and outcome targets) for all of its market transformation programs. These expectations are outlined in the OEE's annual business plan. The energy efficiency initiatives generally have multiple outcome targets of an intermediate and long-term nature. In a few instances the specific outcome target will not be established until data gathering and analysis, or surveys to establish baseline information, have been completed.

Progress on performance achievements

6.122 In 1997, we stated that NRCan did not have many outcome measurements for its energy efficiency initiatives and that it needed to do more work to measure and assess their performance. In our follow-up, we found that NRCan has made considerable progress in addressing this issue and has adopted new performance indicators. These performance indicators are designed to measure progress toward clearly stated goals and objectives and to support continual improvement in performance.

6.123 The Department recognizes the difficulty in determining the incremental effects of its energy efficiency initiatives because other factors, such as changes in energy prices, also have an influence. The challenge for NRCan is to continue improving the coverage and quality of information on the performance of its energy efficiency initiatives over time. It also needs to further quantify their contribution to improved energy efficiency.

Working toward linking impact of programs to Canada's climate change commitments

6.124 In 1997 we noted that the impact of NRCan's energy efficiency initiatives was not clearly linked to Canada's climate change commitments. In recent years, the OEE has significantly increased its efforts to link changes in energy use to changes in greenhouse gas emissions by analyzing trends in energy use and by monitoring performance. It also links energy efficiency to reduced greenhouse gas emissions in its promotional material.

6.125 For example, the OEE is conducting some program-specific surveys in an effort to determine the extent to which program initiatives have helped to change consumer behaviour. These surveys are expected to help the OEE quantify more clearly the influence of its initiatives on energy use in the market. The OEE is also undertaking additional surveys and enhancing its analysis with a view to improving estimates of its program impacts on energy efficiency and greenhouse gas reductions.

6.126 Improving performance information is an ongoing process, and while considerable progress has been achieved since our 1997 audit, many of the issues raised are long-term. The work undertaken by the OEE to date is essential to identifying and collecting performance information for all of its energy efficiency initiatives.

Improved reporting to Parliament

6.127 In 1997 we noted a need for NRCan to improve its reporting to Parliament on the performance expectations and achievements of its energy efficiency initiatives. We found in our follow-up that it has made satisfactory progress.

6.128 For example, in its 1997–1999 *Report to Parliament under the Energy Efficiency Act* tabled in March 2000, NRCan describes more fully the relationship between energy use and greenhouse gas emissions for each end-use sector of the Canadian economy. This report also presents performance data for almost all of the OEE's market transformation programs. NRCan's 2000 *Performance Report* also provides information on trends in greenhouse gas emissions and in energy efficiency.

6.129 Opportunities still exist for NRCan to enhance the coverage and quality of its energy efficiency performance information and thus further improve its reporting to Parliament on the performance expectations and achievements of these initiatives.

Conclusion

6.130 Overall, NRCan has made satisfactory progress in addressing our 1997 recommendations on its energy efficiency initiatives, although many of these issues are long-term. While progress continues, our follow-up work noted improvements in the performance information (both expectations and achievements) as well as an increased effort to link changes in energy use to changes in greenhouse gas emissions. This has also correspondingly improved its reporting to Parliament on its energy efficiency initiatives.

6.131 Our assessment of progress made since our 1997 audit is summarized in Exhibit 6.4.

Exhibit 6.4 Summary of follow-up findings, Natural Resources Canada—Energy Efficiency, 1997

1997 recommendations and observations	Our Assessment	2001 follow-up comments
Performance expectations		
Develop performance expectations with clear and concrete outcomes (10.53).		While NRCan has developed clear and concrete performance expectations for its energy efficiency initiatives, a few outcome targets remain to be established (6.121).
Performance achievements		
Improve performance information on the achievement of individual energy efficiency initiatives (10.60).		NRCan has adopted new performance indicators that provide additional information on performance. However, because of the difficulties with incrementality and attribution, the challenge for NRCan is to continue to improve the coverage and quality of its performance information over time (6.122 to 6.123).
Link to commitments		
Expand information on the nature and extent of the contribution to Canada's climate change commitments (10.69).		NRCan has made efforts to link changes in energy use to changes in greenhouse gas emissions through energy-use trend analysis and program performance monitoring, and in its promotional material (6.124 to 6.126).
Reporting to Parliament		
Enhance reporting to Parliament through improved performance and other information (10.82).		While NRCan has improved its reporting, we believe opportunities for improvement still exist (6.127 to 6.129).

Fully addressed. The original audit finding has been fully addressed and there is no need to take additional action. Our Office will not follow up further.

Satisfactory progress. Substantial progress has been made in addressing the original audit finding, but some additional action is still required. Our Office will do further follow-up work.

Some progress. Some progress has been made in addressing the original audit finding, but considerable additional action is still required to achieve the desired results. Our Office will do further follow-up work.

Unsatisfactory progress. Progress has not been made in addressing the original audit finding, and action remains outstanding. Our Office will do further follow-up work.

About the Follow-up

Objectives

The objectives of this follow-up were to determine:

- the extent to which the federal government has made progress on rethinking its climate change implementation strategy since the 1998 Report of the Commissioner of the Environment and Sustainable Development, Chapter 3, Responding to Climate Change – Time to Rethink Canada's Implementation Strategy;
- the extent to which the sustainable development strategies for key departments and agencies provide specific information on their contribution to addressing climate change; and
- whether recommendations made in the 1997 Report of the Auditor General, Chapter 10, Natural Resources Canada—Energy Efficiency have been addressed. We also wanted to provide information to Parliament on progress made in addressing our recommendations.

Scope

Our follow-up work on Responding to Climate Change—Time to Rethink Canada's Implementation Strategy was conducted at Environment Canada, Natural Resources Canada, and the Federal Climate Change Secretariat. Due to the large number of changes that have occurred as a result of the national climate change process, our work covered a description of new activities and changes that have occurred in the federal government's response to climate change since our original audit. We did not audit the national climate change process, which includes the issue tables/working groups, the Government of Canada Action Plan 2000 on Climate Change, Canada's National Implementation Strategy on Climate Change, or Canada's First National Climate Change Business Plan.

Our work on sustainable development strategies concentrated on the second round of strategies, tabled in February 2001, but also involved a high-level review of the first round of strategies, tabled in 1997. We examined the strategies for the following departments and agencies: Agriculture and Agri-Food, Canadian International Development Agency, Environment, Finance, Foreign Affairs and International Trade, Health, Industry, National Defence, Natural Resources, Public Works and Government Services, and Transport.

Our follow-up work on Natural Resources Canada—Energy Efficiency focussed on performance information (expectations and achievements) related to NRCan's energy efficiency initiatives, their link to Canada's climate change commitment, and reporting to Parliament.

The quantitative information in this chapter has been drawn from the various government sources indicated in the text. Although this quantitative information has been checked for reasonableness, it has not been audited.

Audit Team

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Appendix A—Annex I countries under the United Nations Framework Convention on Climate Change

Countries that have signed but not ratified the Kyoto Protocol		
Australia	Germany	Norway
Austria	Greece	Poland
Belgium	Ireland	Portugal
Bulgaria	Italy	Russian Federation
Canada	Japan	Slovakia
Croatia	Latvia	Slovenia
Czech Republic	Liechtenstein	Spain
Denmark	Lithuania	Sweden
European Union	Luxembourg	Switzerland
Estonia	Monaco	Ukraine
Finland	Netherlands	United Kingdom of Great Britain and Northern Ireland
France	New Zealand	United States of America
Country that has signed and ratified the Kyoto Protocol		
Romania		
Countries that has not signed the Kyoto Protocol		
Belarus*	Iceland	Turkey*
Hungary		

*Does not have greenhouse gas obligations under the Kyoto Protocol.

Source: United Nations Framework Convention on Climate Change Web site as of 9 May 2001

Appendix B—A description of selected Kyoto issues

Issue	Description
Kyoto Mechanisms	
Clean development mechanism	To enable industrialized countries to finance emission-reduction projects in developing countries and to obtain emission-reduction credits for doing so.
International emissions trading	To permit industrialized countries to buy and sell emission-reduction credits among themselves.
Joint implementation	Refers to joint projects among industrialized countries that have Kyoto targets and permits the sharing of emission-reduction credits.
Other Issues	
Carbon sinks	Refers to the removal of carbon from the atmosphere by forests and by good management of agricultural soils. Can be used by countries to offset their emission targets.
Compliance measures	To ensure that countries live up to the rules and play fairly.
Financial support	To provide financial resources to developing countries for the implementation of the Protocol.
Technology transfer	To promote, facilitate, and finance the transfer of environmentally sound technologies, particularly to developing countries.

Source: Climate Change Information Tool Kit: Backgrounder – Following Through on Kyoto: Challenges and Opportunities, United Nations Framework Convention on Climate Change Web site, and Government of Canada Press Releases, 2000

Appendix C—Countries that had ratified the Kyoto Protocol by 9 May 2001

Antigua and Barbuda	Guinea	Palau
Azerbaijan	Honduras	Panama
Bahamas	Jamaica	Paraguay
Barbados	Kiribati	Romania*
Bolivia	Lesotho	Samoa
Cyprus	Maldives	Trinidad and Tobago
Ecuador	Mauritius	Turkmenistan
El Salvador	Mexico	Tuvalu
Equatorial Guinea	Micronesia (Federal States of)	Uruguay
Fiji	Mongolia	Uzbekistan
Georgia	Nicaragua	
Guatemala	Niue	

*Annex I country with greenhouse gas emissions obligations.

Source: United Nations Framework Convention on Climate Change Web site

Appendix D—Components of the Climate Change Action Fund

Component	Description
Technology Early Action Measures	To support cost-effective technology projects that will lead to reductions in greenhouse gas emissions.
Foundation Analysis	To support the sound analysis of options for implementing the Kyoto Protocol.
Science, Impacts and Adaptation	To improve our knowledge of the climate system and to assess the impact of climate change on the regions of Canada and the options for adaptation.
Public Education and Outreach	To inform and engage Canadians on climate change and to form partnerships with other governments, communities, the private sector, and other organizations in early action measures.

Source: Government of Canada Press Release: Federal Government Takes Concrete Action on Climate Change, 1998

Appendix E—Issue tables and working groups and their respective mandates

Issue tables and working groups	Mandate
Agriculture and Agri-Food Table	To propose a sectoral contribution to a national post-Kyoto climate change strategy including the development of options to reduce sectoral emissions and to adapt to the effects of changing growing conditions.
Analysis and Modelling Group	<p>To address issues surrounding the data, analytical and modelling needs in developing a national climate change implementation strategy including:</p> <ul style="list-style-type: none"> ensuring the coherency of baseline data used in evaluating various measures/options to address climate change, providing an analytical framework to ensure consistency and comparability of methodologies and approaches in evaluating various measures/options to address climate change and their implications, and directing the "roll-up" analysis and modelling of various implementation scenarios built on various combinations of specific measures/options.
Buildings Table	To contribute to the development of a national implementation plan addressing climate change that takes into account regional concerns, opportunities and trends, and socio-economic interests of the commercial/institutional building owner/operator, and tenant, home owner, and industry stakeholders.
Credit for Early Action Table	<p>To assess options and to recommend program designs and implementation plans for an early credit system for Canada.</p> <p>To serve as a focal point on domestic emissions trading, in particular for analytical work on voluntary approaches.</p>
Electricity Table	<p>To study the generation, transmission and distribution elements of the electricity industry including the potential contribution that could be made by the electricity and cogeneration industries, including renewable energy, towards greenhouse gas reductions.</p> <p>To develop a common, agreed upon understanding of the present situation (a Foundation Paper) and then assess the choices available to the electricity industry, policy makers and governments.</p> <p>To identify where practicable, drawing on existing information, the economic, environmental and social impacts at provincial and national levels along with the estimated reductions associated with each option and develop recommendations.</p> <p>To consider full cycle greenhouse gas emissions and in addition, based on existing information, other environmental impacts, trade with U.S., and the changing industry structure.</p>
Enhanced Voluntary Action Table	<p>To recommend options to address barriers/disincentives to voluntary action and provide input to the development and implementation of recognition programs, with a view to increasing the effective participation in, and the effectiveness of, voluntary actions to reduce greenhouse gas emissions.</p> <p>The Table will focus on voluntary actions by industries, commercial organizations and institutions and work with other tables to address voluntary actions by consumers and the public at large. It is important that the Table address voluntary measures, which include, but are not limited to, an enhanced Voluntary Challenge and Registry (VCR Inc.).</p>
Forest Sector Table	To analyze and evaluate forest sector options for contributing to Canada's national climate change response and their impacts on the broadly defined forest sector. The Table is to provide an integrating mechanism for all aspects of the climate change challenge for the forest sector and to explore issues not covered by other tables but of importance to the forest sector (e.g., forest-based communities, traditional uses, sector employment, forestry industry specific analysis).

Issue tables and working groups	Mandate
Industry Table	<p>To develop a broader understanding of the challenges and opportunities facing industry in responding to climate change, from an environmental, economic, technological and competitiveness perspective.</p> <p>To evaluate a range of options for reducing greenhouse gas emissions in the context of the national implementation strategy, including those developed by both the Industry Table and other Tables, to assure a clear and broadly shared understanding of the implications for Canada's competitiveness and for impact by region/sector.</p>
Kyoto Mechanisms Table	To address "international emissions trading and related flexibility mechanisms such as the Clean Development Mechanism, Joint Implementation and related domestic trading issues."
Municipalities Table	To coordinate development and analysis of options for the reduction of greenhouse gases in the municipal sector for consideration in the national implementation strategy.
Public Education and Outreach Table	<p>To develop a long-term public outreach strategy, based on sound research, as part of the National Implementation Strategy on Climate Change that will encourage the public to take action on climate change.</p> <p>To provide strategic and practical advice to other issue tables on public outreach.</p>
Science, Impacts and Adaptation Group	To bring together information on the science of climate change, its impacts, and potential adaptation options.
Sinks Table	<p>To identify the state of knowledge, gaps and challenges surrounding the issue of biological sinks as they relate to forestry and agriculture and any other biological sinks that may be identified.</p> <p>To provide technical input and advice to governments to ensure that the necessary information and analyses are available to support a decision regarding the ratification and implementation of the Kyoto Protocol as it relates to sinks.</p>
Technology Table	<p>To develop options for consideration by ministers regarding the advancement of the role of technology to achieve two primary goals:</p> <ul style="list-style-type: none"> • contribute to the reduction of greenhouse gas emissions through development and commercialization of innovative technologies; and • to enhance capabilities and opportunities for Canadian companies in providing environmentally responsive technologies in domestic and international markets.
Tradeable Permits Working Group	To manage work relating to options, which would involve mandatory permit requirements for at least some sources of greenhouse gases.
Transportation Table	<p>To identify specific measures to mitigate greenhouse gas emissions from Canada's transportation sector.</p> <p>The Table will identify and analyze a range of potential measures to reduce greenhouse gas emissions. The analysis of these measures should include their greenhouse gas impacts during the budget period 2008-2012 and up to 2020, and their costs and benefits (see details of Options Paper).</p> <p>The Table includes all aspects of Canada's transportation system: all modes (road, rail, marine, air); transportation fuels; passenger transport (intercity passenger; urban passenger); transportation equipment (excluding emissions from manufacturing); transportation infrastructure; freight transport; urban transit; vehicle technology and standards; intermodal transportation; and transportation demand management.</p>

Source: National Climate Change Process Web site

Appendix F—Some new key sources of information on climate change¹

Information		Source
Telephone		
1-800-O-Canada (622-6232)		Government of Canada
1-800-959-9606		Government of Canada
Web sites		
www.nccp.ca		National Climate Change Process
www.climatechange.gc.ca		Government of Canada
www.ec.gc.ca/climate		Environment Canada
www.climatechange.nrcan.gc.ca		Natural Resources Canada
Documents²		
1998	An Agenda to Address Climate Change	Natural Resources Canada
1998-2000	Foundation Papers and Option Papers from Issue Tables/Working Groups	National Climate Change Process
1999	Global Climate Change: Taking Action on Climate Change	Natural Resources Canada and Environment Canada
1999	Climate Change Information Tool Kit	Government of Canada
1999	Eleven backgrounders on topics such as: <ul style="list-style-type: none"> • Addressing Climate Change • Greenhouse Gas Emissions: Outlook to 2010 • Meeting Climate Change Challenges: Canadian Successes • Meeting our Kyoto Commitment: Challenges and Opportunities • The Climate Change Action Fund • The Federal Government: Leading by Example on Climate Change • The Impacts of Climate Change • The Regional Impacts of Climate Change • Towards a National Climate Change Strategy • Understanding the Science of Climate Change • What Canadians Can Do About Climate Change 	Natural Resources Canada and Environment Canada
1999	Ten fact sheets on climate change: agriculture; coastal zones; economy; energy; fishery; forests; human health; science; technology; and transportation	Natural Resources Canada and Environment Canada
1999	Canada's Perspective on Climate Change: A Compendium of Canadian Initiatives - Science, Impacts and Adaptation: Taking on the Challenge	Environment Canada
1999	Canada's Emissions Outlook: An Update for 2010	National Climate Change Process
2000	Emission Reductions from Federal Operations. Progress Report to Canada's Climate Change Voluntary Challenge and Registry Inc.	Government of Canada
2000	Distillation of Phase One Proposals from Issue Tables	National Climate Change Process
2000	Canada's Greenhouse Gas Inventory 1990-1998	Environment Canada
2000	Government of Canada Action Plan 2000 on Climate Change	Government of Canada

Information		Source
2000	Canada's National Implementation Strategy on Climate Change	National Climate Change Process
2000	Canada's First National Climate Change Business Plan	National Climate Change Process
2000	Office of Energy Efficiency - Energy Efficiency Trends in Canada 1990 to 1998: A Review of Secondary Energy Use, Energy Efficiency and Greenhouse Gas Emissions	Natural Resources Canada
2000	A Compendium of Canada's Initiatives: Taking Action on Climate Change	National Climate Change Process
2000	An Assessment of the Economic and Environmental Implications for Canada of the Kyoto Protocol, Analysis and Modelling Group report	National Climate Change process

¹ Excludes provincial sources of information on climate change.

² At the time of our follow-up, most of these documents could be found on one of the Web sites mentioned above.

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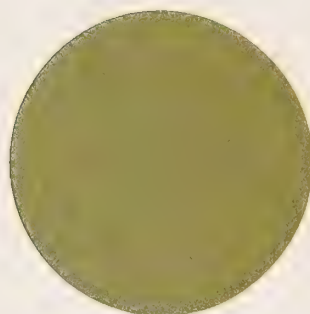


Report of the
**Commissioner of the
Environment and
Sustainable Development**
to the House of Commons

Petitions

Chapter 7

Connecting with Canadians:
The Environmental Petitions Process



2001



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Petitions

Chapter 7

Connecting With Canadians:
The Environmental Petitions Process

The 2001 Report of the Commissioner of the Environment and Sustainable Development comprises seven chapters, The Commissioner's Perspective—2001, and a Foreword. The main table of contents is found at the end of this publication.



This report is available on our Web site at www.oag-bvg.gc.ca.

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Chapter

7

Connecting With Canadians

The Environmental Petitions Process

If you have comments or questions about the environmental petitions process or want to submit a petition, please contact us at the following:

*Office of the Auditor General of Canada
and the Commissioner of the Environment and Sustainable Development
Attention: Petitions
240 Sparks Street
Ottawa, Ontario
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Fax: (613) 941-8286
E-mail: petitions@oag-bvg.gc.ca
Web site: www.oag-bvg.gc.ca*

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Connecting With Canadians

The Environmental Petitions Process

Main Points

7.1 The environmental petitions process under the *Auditor General Act* provides a formal means for Canadians to bring their concerns about environmental issues to the attention of federal ministers and departments and obtain a response to their concerns. For example, through the process, citizens and organizations can ask federal ministers to explain federal policy, investigate an environmental problem, or examine their enforcement of environmental legislation.

7.2 The Commissioner of the Environment and Sustainable Development is responsible for handling environmental petitions on behalf of the Auditor General of Canada. The Commissioner co-ordinates the process, monitors responses, and makes sure that the questions that Canadians pose and the issues that they raise are addressed by federal ministers and their departments.

7.3 Although the environmental petitions process was established back in December 1995, it is virtually unknown to Canadians. One of the key priorities for the Commissioner is to make the public more aware of the process and provide guidance on preparing and submitting environmental petitions. We are taking steps to try to ensure that the petitions process works as effectively as possible, such as following up on departmental commitments outlined in petition replies and considering the subject matter of petitions for future audits or studies.

7.4 If you have concerns about an environmental or sustainable development issue and would like some answers, you should consider using the environmental petitions process under the *Auditor General Act*.

Introduction

7.5 The petitions process was created almost six years ago as a result of an amendment to the federal *Auditor General Act*. It provides a formal means for Canadians to bring their concerns about environmental issues to the attention of federal ministers and obtain a response to their concerns. For example, through the process, citizens and organizations can ask federal ministers to explain federal policy, investigate an environmental problem, or examine their enforcement of environmental legislation.

7.6 This chapter is intended to make the environmental petitions process more understandable and accessible to Canadians. We hope that the chapter stimulates your interest and gives you some insight into the potential benefits of the process. This chapter presents the following:

- an introduction to the environmental petitions process under the *Auditor General Act*;
- an overview of petition issues and trends and summaries of recent petitions and replies;
- our review of the petitions process and new initiatives that have emerged as a result (page 10); and
- information that you need to develop and file your own environmental petition (page 12).

The Environmental Petitions Process Under the *Auditor General Act*

What is an environmental petition?

7.7 The environmental petitions process retains the idea behind a traditional petition—a formal request to an authority or governing body. However, there are important differences.

7.8 **Numerous signatures are not required.** An individual, organization, municipality, or corporation can initiate an environmental petition.

7.9 **A simple letter is enough.** Unlike the formalities of a traditional petition, an environmental petition can take any form as long as it is in writing.

7.10 **Petitions are first sent to the Auditor General of Canada.** The Commissioner, on behalf of the Auditor General, forwards petitions to the appropriate departments and monitors replies.

7.11 **Environmental concerns must be at the root of a petition.** Petitions must address an “environmental matter within the context of sustainable development” (see page 12 for further details).

7.12 Only certain federal departments and agencies are involved in the process. Exhibit 7.1 lists the 25 organizations subject to the process. Exhibit 7.2 provides a snapshot of the process.

Environmental petitions—a better option

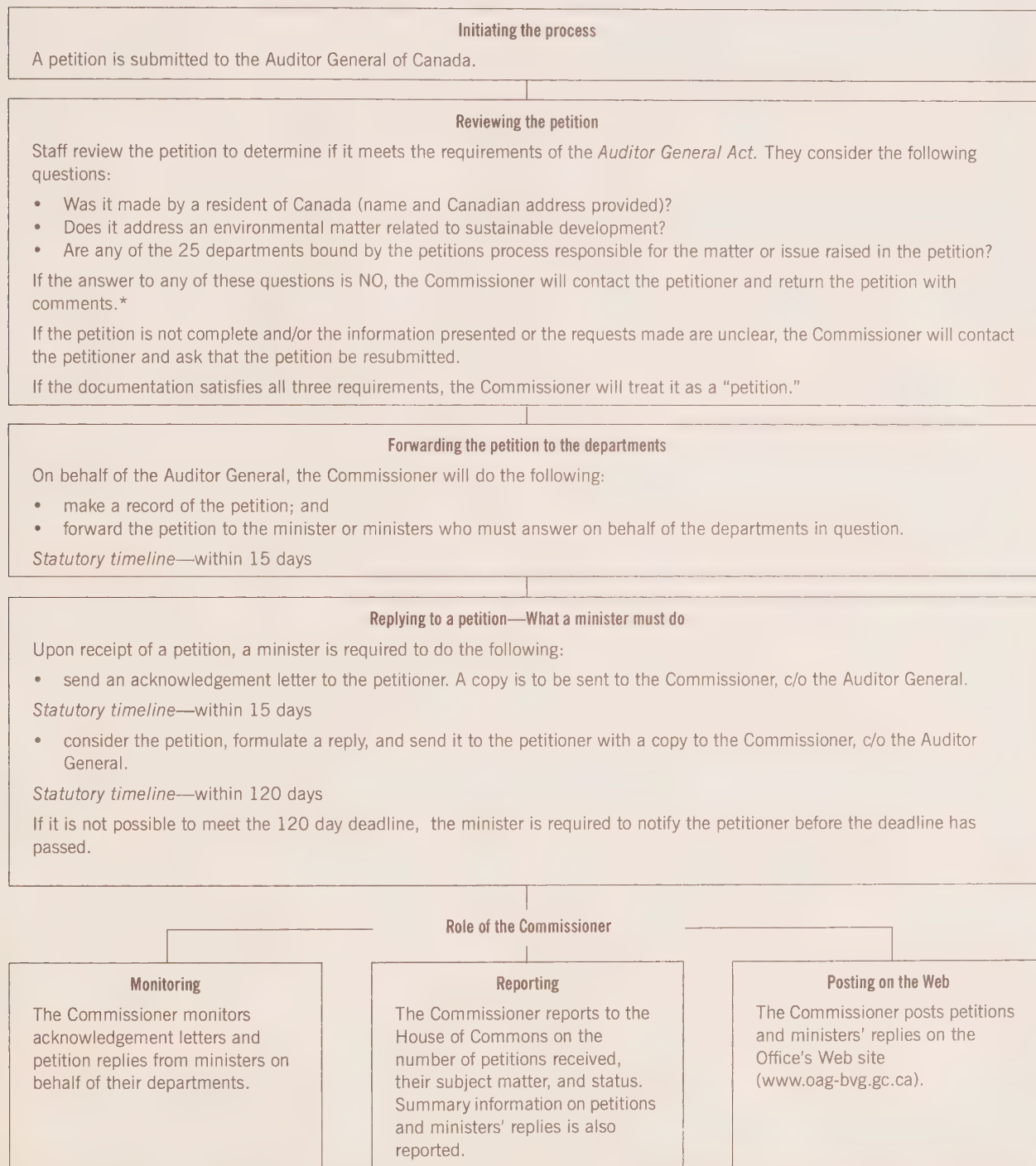
7.13 Canadians have always been able to write to federal ministers or departmental officials and get answers. However, the petitions process offers a formal mechanism for bringing environmental concerns to the government's attention. Federal ministers who receive petitions are compelled to provide a response within 120 days. The Commissioner monitors ministers' replies and reports on petitions in her annual report to the House of Commons.

Exhibit 7.1 Federal departments and agencies subject to the environmental petitions process

The petitions process applies to 25 federal departments and agencies:

Agriculture and Agri-Food Canada
Atlantic Canada Opportunities Agency
Canada Customs and Revenue Agency (formerly Revenue Canada)
Canada Economic Development Agency for Quebec Regions
Canadian Heritage, Department of
Canadian International Development Agency
Citizenship and Immigration Canada
Environment Canada
Finance Canada, Department of
Fisheries and Oceans
Foreign Affairs and International Trade, Department of
Health Canada
Human Resources Development Canada
Indian and Northern Affairs Canada
Industry Canada
Justice Canada, Department of
National Defence
Natural Resources Canada
Parks Canada Agency
Public Works and Government Services Canada
Solicitor General Canada
Transport Canada
Treasury Board of Canada, Secretariat
Veterans Affairs Canada
Western Economic Diversification Canada

Exhibit 7.2 Snapshot of the environmental petitions process



*The Commissioner can provide information about the process and the necessary elements of a petition but is not in a position to comment on the substance of the petition.

7.14 Environmental petitions are a way to raise the profile of particular issues with parliamentarians, the media, the general public, and the Commissioner. They can also be an effective way to obtain concrete responses from federal departments, as illustrated by one petition that has worked its way through the process (see page 8).

Who can participate in the environmental petitions process?

7.15 Any individual, organization, corporation, or municipality residing in Canada can submit an environmental petition. For example, a petitioner could be one of the following:

- a retailer who wants to know how the federal government is handling the risks associated with genetically modified food;
- a northerner who would like to be involved in consultations on harvesting of the forest resource north of 60° latitude;
- a municipality that would like to know what kind of federal regulations are going to be put in place to reduce smog and emissions of greenhouse gases; or
- an environmental organization that wants to know whether refineries are complying with new federal fuel regulations.

What kinds of requests can be made?

7.16 As a petitioner, you can approach environmental matters and concerns from various angles. Some examples follow:

- If you think that a federal law or regulation is being broken or is not being enforced, you can ask federal departments to investigate.
- If you are unclear about federal policy in a particular area, you can ask the government to explain it to you.
- If you have concerns about existing environmental laws, regulations, or policies, you can ask that they be reviewed. If you suggest improvements, you can request a response to your suggestions.
- If you are unclear about the involvement of a particular department in an issue, you can ask for clarification.
- If you want to know what action has been taken to fulfill a public commitment made by a minister, you can ask for details.
- If you want to know what a department is doing to reduce the environmental impacts of its operations and practices, you can ask the department to provide you with details.

7.17 A guide to preparing environmental petitions (see page 11) provides details on how you can participate in the process.

Our petitions report

7.18 We begin with a look at petitions dating back to December 1995. Appendix A provides details on current petitions—those that have been received or responded to since the last Commissioner's report in May 2000. Appendix B is a list of petitions received prior to 2000.

Petitions retrospective (December 1995–15 July 2001)

7.19 **Few petitions have been submitted to date.** Only 32 environmental petitions have been received since the process was established. Things started out slowly, with one petition received in 1996 and then seven in 1997. Use of the petition process peaked in 1998 with a total of 11 petitions. Since then, petition numbers decreased to seven in 1999 and then to six in 2000. Six petitions have been received in 2001 (by mid-July 2001).

7.20 Since the Commissioner's last report in early May 2000, a total of 11 petitions were received and forwarded to federal departments. Replies have been received for six of those petitions.

7.21 **Departments engaged in the environmental petitions process.** Roughly half of the 25 departments and agencies that are subject to the process have been asked to respond to petitions. As at 15 July 2001, ministers had replied to petitions on behalf of the following departments: Agriculture and Agri-Food Canada, Atlantic Canada Opportunities Agency, Department of Canadian Heritage, Department of Foreign Affairs and International Trade, Environment Canada, Fisheries and Oceans, Health Canada, Indian and Northern Affairs Canada, Industry Canada, Natural Resources Canada, Parks Canada Agency, Transport Canada, and the Treasury Board Secretariat. In several cases, petitions were forwarded to more than one department. Joint responses, provided on behalf of two or more departments, are becoming more common.

7.22 The Minister of Fisheries and Oceans has been asked to reply to the largest number of petitions (14). The Minister of the Environment has also received a large number (13).

7.23 Departments appear to be making a real effort to reply to petitions as required under the statute (within 120 days of receipt). This contrasts with earlier years, when some departments were not meeting the deadlines on a consistent basis.

What are Canadians concerned about?

7.24 Petitions demonstrate the range of environmental and, more broadly, sustainable development issues that Canadians care about. The scope of the issues also illustrates the extent to which the federal government, through its laws, policies, programs, and activities, exerts an influence on the environment and on sustainable development at all levels—local, regional, national, and international.

7.25 Many petitions have addressed concerns that are local in nature. In one case, a petitioner was concerned about discharges into air and water from a local paper mill. It was alleged that enforcement of federal pollution regulations was weak and that the community living downstream of the mill was suffering as a result. In other examples, petitions have centred around specific projects such as the construction of a dam, bridge, or golf course.

7.26 In some cases, local problems raise broader questions that are relevant to the national scene. For example, when the toxic substance trichloroethylene (TCE) contaminated the drinking water supply of a small rural community, petitioners from the community asked that the Canadian Drinking Water Guideline for TCE be made more stringent and action be taken to regulate TCE under the *Canadian Environmental Protection Act* (see insert, Petition on trichloroethylene).

7.27 Federal policy covering such issues as sustainable transportation and biotechnology has been highlighted through environmental petitions. For example, biotechnology policy was examined as part of a petition seeking clarification on the role of the federal government in the release of genetically modified organisms into the environment.

7.28 Few petitions have focussed on Canada's activities in the international sphere. In one case, petitioners expressed concern about the potential effect

Petition on trichloroethylene

The contamination of a community's drinking water supply was the subject of a petition launched by the Sierra Legal Defence Fund in the fall of 2000. Sierra Legal was acting on behalf of the Beckwith Water Contamination Committee. Beckwith residents depend on private groundwater wells for their drinking water. Many of these wells are contaminated with trichloroethylene (TCE), a substance that was declared "toxic" under the *Canadian Environmental Protection Act* in 1993. The petitioners made four specific requests in their petition. Two of the requests are profiled here as well as excerpts from the joint reply provided by the federal ministers of Health and the Environment.

Amend the Canadian Drinking Water Guideline for Trichloroethylene (TCE). The petitioners questioned the current Canadian guideline for TCE, arguing that it should be made more stringent based on recent scientific developments and similar guidelines in other jurisdictions. They asked the ministers to consider reviewing the Canadian Drinking Water Guideline for TCE, with a view to making it at least as stringent as the guideline set by the United States Environmental Protection Agency. The ministers acknowledged the seriousness of the concerns of the citizens of Beckwith Township and provided the following response to their request:

With respect to making the Canadian Drinking Water Quality Guidelines for TCE more stringent, Health Canada will expedite its review of the adequacy of the current Canadian Drinking Water Guideline for TCE. Health Canada will work through the existing federal/provincial mechanism to encourage the earliest possible implementation of any forthcoming recommendations relating to the revision of the TCE guideline. The Federal/Provincial Drinking Water Subcommittee decided at its May 2000 meeting to increase the priority for reassessment of the TCE guideline.

Take action to regulate TCE under the *Canadian Environmental Protection Act* (CEPA). The petitioners pointed out that TCE was declared toxic under CEPA in 1993. They questioned why the government had not taken steps to control the use of TCE in Canada and they asked that the ministers take action in this regard.

The ministers described the progress that had been made since 1993 to develop a regulation to control TCE. Further, the ministers noted the following:

With respect to taking action under CEPA to protect the environment and Canadians, Environment Canada will move as expeditiously as possible to bring into force regulations for TCE under CEPA, 1999. It is expected that regulations for TCE will be published in Part 1 of the *Canada Gazette* by mid-2001 to control its use in solvent degreasing, the major use of TCE.

of the now defunct Multilateral Agreement on Investment on social equity, environmental protection, public health protection, and sustainable development. Only two petitions have addressed Canada's fulfillment of its commitments under international environmental conventions and agreements.

7.29 Fisheries and environmental assessment are important issues for Canadians. If numbers are any indication, fisheries and environmental assessment are important issues for Canadians. Fisheries-related matters were the subject of 14 petitions overall. Issues ranged from habitat destruction to conservation, aquaculture, and genetically modified fish. A large number of petitions focussed on federal departments as “responsible authorities” under the *Canadian Environmental Assessment Act*. Many of the specific projects or undertakings identified in the petitions were the subject of an environmental assessment under the Act.

7.30 Other significant issues. Other issues that received a fair amount of attention through the petitions process were the following:

- **Environmental and health concerns.** In addition to the petition on the toxic substance TCE, petitions have addressed ozone depletion, pesticide use, and fuel additives.
- **Sustainable development north of 60° latitude.** Petitions have focussed on the Canadian Mining Regulations and logging of the boreal forest in the Yukon Territory.
- **Sustainable transportation.** Petitioners want to see the federal government take a more active role in supporting public transit and other more “environmentally friendly” modes of transportation.

7.31 Several new issues have emerged since the Commissioner last reported in May 2000; these include biotechnology, wildlife protection, threats to parks located on federal lands, aquaculture, and the decommissioning of railway lines.

7.32 Exhibit 7.3 lists the issues covered by petitions and identifies each petition by number. The summaries provided in Appendices A and B provide more information on individual petitions and ministers' replies.

Getting more mileage from the process

7.33 Given that the petitions process has been in place for over five years, we decided that it was time to step back and consider what had been gained by the process over the years. What kind of impact has the petitions process had on federal departments, on parliamentarians, and the general public? Has the process improved protection of the environment by federal departments and led us further along the path toward an environmentally sound and sustainable future? Could we be doing more to realize the full potential of the process? These questions were very much on our minds when we started our petitions review project in the spring of 2001.

Exhibit 7.3 Issues canvassed by petitions

Aquaculture (petition No. 29)
 Biotechnology (23)
 Crown obligations to First Nations (11)
 Enforcement (8 and 19)
 Renewable and non-renewable resource development in Canada's north (6, 18, and 24)
 Protection of watersheds and fisheries habitat (1, 12, 15, 17, 27, 30, and 31)
 Emissions and discharges (5 and 19)
 Fisheries conservation (7 and 14)
 Federal infrastructure programs (1 and 3)
 Federal divestment (7)
 Environmental health (5, 8, 20, 25, and 32)
 Environmental assessment (1, 4, 12, 13, 15, 16, 19, 28, 30, and 31)
 Federal-provincial co-operation (10)
 International agreements (8, 9, and 23)
 Policy instruments to support sustainable development (29)
 Sustainable transportation (2, 22, and 29)
 National parks (4 and 21)
 Federal lands (30 and 31)

Note: Some petitions cover more than a single topic or issue.

Our review

7.34 As part of our review, we spoke to several individuals and organizations that had launched petitions during the past few years. We also met with departments that had been involved in the process, and we compared our approach with other agencies that oversee similar public accountability processes.

7.35 Some petitioners suggested that the process was of limited value because their petitions and the replies that they elicited seemed to disappear into a “black box.” They saw little evidence that the Commissioner was taking notice of the issues in their petitions or of the quality of the responses provided by departments. Nor did they see the Commissioner drawing attention to the issues covered in petitions, aside from the brief summary provided in the Commissioner's annual report. Other petitioners remarked on the lack of information or guidance on the petitions process.

7.36 The overall message that we received from petitioners was loud and clear. While the Office has performed its basic petitions function as outlined in the *Auditor General Act*—acting like a petitions clearing house and

providing a brief status report on petitions to the House of Commons every year—it should change its approach in order to ensure that the process works as effectively as possible. Otherwise, the process will be of limited value.

New initiatives

7.37 We concluded that we can do more to fully realize the potential benefits of the process. Making the process more accessible and understandable to Canadians is a key priority. This chapter and the guide that it contains should move us forward in that direction. Our other new initiatives are described below:

- **Developing an online petitions catalogue.** The petitions catalogue is an electronic listing that will form part of our new “petitions corner” on the Office’s Web site (www.oag-bvg.gc.ca). Petitions and the replies that they elicit from federal ministers will be posted on our site. However, in order to comply with the *Privacy Act*, we will first seek the consent of petitioners.
- **Monitoring departmental replies more closely.** The Commissioner monitors petition replies to determine whether federal ministers and their departments are providing considered responses to the issues raised and the requests made through petitions. In doing so, the Commissioner will consider, at a minimum, whether the minister has provided a substantive (detailed and factual) response to the petitioner’s request(s).
- **Auditing.** The Commissioner will consider the subject matter of petitions for future audits or studies that she conducts as part of her ongoing responsibilities.
- **Following up on commitments.** On a selective basis, the Commissioner intends to track departments’ progress in carrying out commitments outlined in their petition replies.
- **Tracking trends.** If petitions become more numerous, the Commissioner hopes to monitor, track, and report on significant themes or issue areas and provide more substantive information on these issues to parliamentarians and the general public.

A guide to preparing environmental petitions

How can you participate?

7.38 This section of the chapter guides you through the steps required to prepare a petition document. We discuss the form the petition should take, the information that should be provided, how to prepare your petition request, and where to send the petition.

Initial questions

7.39 Before you begin to prepare your petition, you need to consider the following questions:

- Is the matter that you want to address covered by the petitions process? Is it an environmental matter in the context of sustainable development?
- Is the matter or subject of the petition a responsibility of one of the 25 departments and agencies subject to the process?

If the answer is “no” to any of these preliminary questions, then the petitions process will not work for you. You may want to consider other ways to get the answers that you need (see Exhibit 7.4).

Exhibit 7.4 Getting answers: Alternatives to the petitions process

- Obtain information through the federal *Access to Information Act*. The Act establishes a right of access to federal government information for Canadians, subject to a number of exceptions.
 - Use processes established through provincial or territorial environmental rights legislation. Examples include Applications for Review and Applications for Investigation established under the Ontario *Environmental Bill of Rights*. These requests are submitted to the Environmental Commissioner of Ontario and forwarded to certain provincial ministries for a response. The Yukon *Environment Act* also provides residents of the Yukon with a formal avenue for lodging complaints, petitions, and requests for investigation on environmental matters.
-

What is meant by an “environmental matter in the context of sustainable development”?

7.40 Although this question may seem quite daunting, it really is not. If you are concerned about an environmental matter, then the petitions process applies. The reference to “sustainable development” is not intended to restrict the kind of environmental matters that can be addressed through a petition. Rather, it is included to reinforce the idea that environmental concerns or issues do not exist in a vacuum. The concept of sustainable development recognizes the interconnections between human beings and the natural environment and the links between economic and social development and environmental protection. Reconciling and integrating all these aspects is at the core of sustainable development.

7.41 The emphasis on environmental matters recognizes that the environment is at the heart of the equation. A healthy environment is critical for a prosperous economy and for our social well-being. It is the source of the resources we consume and use to produce goods and services. Without the earth's natural support system, we, and all other species on the planet, would not survive.

7.42 Some of the ways that federal departments can help achieve the goal of sustainable development are described in the *Auditor General Act* as follows:

- integrating the environment and the economy;
- promoting equity;
- respecting nature and the needs of future generations;
- protecting the health of Canadians and ecosystems;
- meeting international obligations;
- preventing pollution; and
- adopting an integrated approach to planning and making decisions that takes into account the environment and natural resource costs of different economic options and the economic costs of different environmental and natural resource options.

Federal organizations subject to the environmental petitions process

7.43 Twenty-five departments and agencies are subject to the petitions process. They are listed in Exhibit 7.1.

7.44 You may suggest that we submit your petition to a particular minister, but note: the Commissioner makes the final determination on whether a department is a “responsible” department and therefore obliged to respond to a petition.

7.45 To find out more about the scope of environmental and sustainable development activities at the federal level, you may wish to review the sustainable development strategies that are prepared every three years by certain federal departments and agencies. They are the same federal organizations that are required to reply to petitions under the *Auditor General Act*. These strategies are available directly from departments, or they can be accessed through departmental Web sites or through links on our Office’s Web site.

7.46 Other sources of information on federal departmental roles and responsibilities include departmental reports on plans and priorities and performance reports.

What should a petition contain?

7.47 The following are some suggestions for developing a petition.

- **Prepare a covering letter.** Although not necessary, you may find it useful to prepare a covering letter for your petition. In that letter you would indicate that you are submitting a petition under the *Auditor General Act*, and you would enclose the petition document as an attachment.
- **Provide a background information section.** Setting out the facts and circumstances giving rise to the petition is important for a number of reasons. First, it provides the information necessary to satisfy the

Commissioner that the request should be treated as a petition under the *Auditor General Act*. Second, it provides the context for your petition request and provides the minister and department with enough information to enable them to formulate a response. It may also be useful to provide information, if available, on the involvement of federal departments in the issue of concern.

- **Articulate your petition request—a critical stage in the process.** Once you have laid out the background facts giving rise to your petition, you need to formulate your petition request. You may find it useful to consider the following questions.

What kind of information would you like to know?

What do you want federal departments to do?

Do you have any suggestions that you wish to put forward?

- **Provide supporting information.** If you have written reports or other material that support the issues raised in your petition, you may wish to reference them and provide a copy with your petition. We will ensure that the supporting material forms part of the package that is forwarded to a minister.
- **Sign and date your petition. Don't forget to include your address.** You need to provide an address in order to establish that you are a resident of Canada and are therefore eligible to submit a petition to us.
- **Send your petition to the Auditor General of Canada.** The address is provided at the beginning of this chapter.

7.48 The Commissioner's staff will assist you with any questions that you may have about the environmental petitions process.

Conclusion

7.49 Canadians need tools and mechanisms to help them determine whether governments are taking environmental and sustainable development concerns seriously. The *Auditor General Act* provides for such a mechanism—the environmental petitions process.

7.50 One of the Commissioner's key priorities is to make the public more aware of the process. We also intend to change the way we approach our petitions function so that we get more mileage from the process. This chapter is the first step toward realizing these objectives.

7.51 If you have concerns about an environmental or sustainable development issue and would like some answers, we invite you to use the petitions process under the *Auditor General Act*.

Appendix A—Summary of current petitions received or pending (1 January 2000–15 July 2001)

Crown obligations to First Nations (petition No. 11)

Petition

Petitioner: Athabasca Chipewyan First Nation

Date: 4 May 1998

Summary: The petitioners stated that they had been pursuing a claim for the past six years with Indian and Northern Affairs Canada. They alleged that the Crown was in breach of its common law, statutory, constitutional, and fiduciary obligations to the First Nation by enabling and permitting B.C. Hydro to construct and operate the W.A.C. Bennett Dam. They suggested that the dam was operating in a manner that permanently destroyed the environment of Indian Reserve 201 and a major source of economic opportunity for the First Nation. It was alleged that the damage to the reserve was continuing without any effort at remediation or compensation by Canada or B.C. Hydro.

Reply

Federal department responsible for reply: Indian and Northern Affairs Canada

Dates of reply: 10 August 1998 and 8 June 2001

Statutory deadline met? The Department requested an extension.

Summary of Minister's reply: In a letter dated 10 August 1998, the Minister requested an extension of time to respond to the petition, stating that a reply was not possible at that time as the matters raised in the petition were the subject of litigation involving the First Nation and the Government of Canada. In a further letter dated 8 June 2001, the Minister indicated that he could not comment further as litigation was ongoing.

Sustainable development in national parks (petition No. 21)

Petition

Petitioner: Pat Crowley

Date: 7 January 2000

Summary: The petitioner expressed concern that Parks Canada had not developed information on the three dimensions of sustainable development—economic, environmental, and social. The petitioner alleged that the Banff-Bow Valley Study, the Jasper Management Plan, and the Jasper Community Plan lacked social and economic data. The petitioner also alleged that the National Parks Revenue Policy, which states that science is to be funded only from appropriations, is ignored within Jasper National Park, with moneys being directed to science programs rather than the maintenance of capital assets and visitor services.

Reply

Federal department responsible for reply: Parks Canada Agency

Date of reply: 18 April 2000

Statutory deadline met? Yes

Summary of Minister's reply: The Minister acknowledged that the Banff-Bow Valley Study and the study entitled *Sustaining Our Heritage* suggest that Parks Canada must improve its economic, environmental, and social information for planning and decision-making. However, the Agency has focussed its resources on ecological issues in order to respect the requirements of the *National Parks Act*. The report of the Panel on the Ecological Integrity of Canada's National Parks confirmed the need for a better understanding of ecosystems and for quality visitor services. The Agency continues to gather ecological data on the human dimensions of ecosystem management.

With respect to the Jasper National Park Management Plan and the Jasper Community Plan, their information base included a series of studies and assessments such as an economic impact analysis of visitor expenditures. The Agency is also studying the impact of development controls in national park communities. Additional consultation with businesses and communities to research, collect, and analyze data will also be undertaken. In addition, the Agency is considering economic, social, and ecological considerations in its operations.

With respect to the National Park Revenue Policy and Jasper National Park, the Minister provided information on the Agency's budget. Revenues from all sources (\$67 million) represent 18 percent of the Agency's total budget (\$365 million). The Agency spends approximately 25 percent (\$85 million) of its total budget on science and programs to protect the natural and cultural resources under its stewardship. Approximately 50 percent (\$180 million) is spent on providing quality services and facilities to visitors, including camping at Jasper National Park. The Agency will continue to address its use of revenues by identifying opportunities where additional investments in recapitalizing facilities, such as campgrounds, might be realized. The February 2000 federal Budget provided the Agency with an additional \$12 million to support infrastructure recapitalization initiatives.

Sustainable development and transportation (petition No. 22)

Petition

Petitioner: The Society for Conservation Biology, Kingston Chapter

Date: 24 March 2000

Summary: The Society expressed concern about transportation policy in Canada. In particular, members of the organization are alarmed by the accelerating rate at which highways and urban sprawl are paving over natural habitats across the country. They suggest that although the federal government claims to support "sustainable development," the widespread subsidization of motor vehicle transportation has led to devastating ecological as well as economic and social costs. They assert that motor vehicles are far more damaging to the environment than any other form of transport. Our over-reliance on automobiles has led to the large-scale destruction and fragmentation of wildlife habitat, damage to ecosystems from acid rain and smog, and rising greenhouse gas emissions. These effects have occurred despite the federal government's international commitments to protect biodiversity and fight climate change. Canada must act now to curb the negative impacts of our current transportation policy if it is to live up to its international commitments and not lose its international credibility. The environmental costs associated with the "car culture" have already been recognized by many countries and they have invested in the development of economically efficient public transportation systems. In contrast, Canada has gradually dismantled infrastructure for rail travel in recent decades, while encouraging the expansion of highways and dependence on trucking as the primary mode of shipping goods. While the Society applauds Transport Canada's Moving on Sustainable Transportation Program, it strongly believes the government must take a more active role in shifting our transportation focus to actively promote and support alternative, more environmentally sound modes of transportation before further environmental, health, and economic damage occurs. The Society urged the federal government to initiate the following actions:

- Subsidize sustainable instead of unsustainable transportation (e.g., rail vs. truck for inter-city transport of goods, and public transit vs. private motor vehicle).
- Levy a gas tax for public transportation infrastructure.
- Establish a user-pay system for those using private instead of public transportation.
- Recognize employer-provided transit passes as non-taxable employee benefits.

- Strengthen rail and bus services between cities.
- Ban multiple trailer trucks from all highways and limit truck driver work hours to a maximum of 10 per 24 hours.
- Fund research into the maintenance of ecological connectivity in highway-dominated landscapes.

Reply

Federal department responsible for reply: Transport Canada

Date of reply: 18 October 2000

Statutory deadline met? Yes

Summary of Minister's reply: The Minister responded to each of the recommendations put forward by the Conservation Society (see below). In addition, the Minister assured the petitioners that sustainable transportation remains one of Transport Canada's top priorities. He stated that it is the Department's goal to achieve a transportation system that is safe, efficient, cost effective, and environmentally responsible. He outlined recent actions that the government has taken to realize this goal:

Sustainable development strategy. The Department's first sustainable development strategy was tabled in Parliament in December 1997. It contains eight challenges and 47 specific commitments and is currently being updated. As part of this process, stakeholder consultations were held across Canada in June 2000. (Commissioner's note: The new departmental strategy was tabled in February 2001.)

Climate change. Addressing climate change is an important component of Transport Canada's sustainable development strategy. The Department collaborated with the provinces and territories in sponsoring a Transportation Table as part of a national process to develop a climate change strategy in response to the Kyoto Protocol. The Table's November 1999 Options Paper assesses the costs, benefits, and impacts associated with over 100 measures to mitigate greenhouse gas emissions in the transportation sector. A companion document that summarizes stakeholder feedback on the Options Paper has also been prepared. The Options Paper and other related information is available on Transport Canada's Web site.

Other initiatives on climate change include the Government of Canada Action Plan 2000 for Climate Change (6 October 2000). There are five pillars of the transportation component of the plan. Federal, provincial, and territorial Energy and Environment ministers agreed on a national implementation strategy and a first national business plan during their meeting on 16-17 October 2000. The plan includes the actions described in the Government of Canada Action Plan 2000 as well as actions forwarded by individual provinces.

Responses to the recommendations put forward by the Conservation Society:

- **Subsidize sustainable instead of unsustainable transportation.** Transport Canada has been moving away from subsidizing the transportation sector and from operating transportation facilities to overseeing them. In doing so, it has been divesting ports and airports to local organizations and shifting costs to users.
- **Levy a gas tax to fund public transportation infrastructure.** Taxation issues fall within the purview of the Minister of Finance. In general, the federal government does not support dedicated taxes; all taxes are directed to a single revenue fund to be allocated by Parliament to the nation's priorities. For example, in the 2000 Budget, the government announced a \$2 billion municipal infrastructure program to be matched by the provinces and territories. The focus is on green infrastructure, and investments in public transit are eligible for support.
- **Establish a user-pay system for those using private instead of public transit.** As mentioned, Transport Canada has been divesting itself of major parts of its infrastructure. As a consequence, users pay the costs of these facilities, rather than the general taxpayers. For the most part, provincial fuel taxes paid by motorists go toward the costs of building and maintaining roads. A number of options to introduce pricing mechanisms, such as road and parking pricing, were studied by the Transportation Climate Change Table (see above). The Table concluded that while promising, further work is needed before widespread application of the options.
- **Recognize employer-provided transit passes as non-taxable employee benefits.** The Transportation Table studied a tax exemption for employer-provided transit passes as an early action to reduce emissions. Table members felt that the

measure would be a useful tool in marketing transit to large employers. However, as noted above, taxation issues are the responsibility of the Minister of Finance, who has been reviewing such a measure.

- **Strengthen rail and bus services between cities.** The Minister of Transport announced on 12 April 2000 that an additional \$400 million would be provided in capital funding to VIA Rail to address key pressures in its existing system. Funds are to be targeted to renewing the fleet, modernizing signaling on VIA-owned track, making strategic improvements in the Quebec-Windsor Corridor, refurbishing stations, and improving environmental waste management.
- The Minister also announced that VIA had been asked to prepare an “outer” commuter strategy for the Greater Toronto and Greater Montreal areas to complement the services offered by urban transit authorities. In the case of the Greater Toronto Area, this strategy will cover the following: examining the extension of existing services and increasing capacity in peak hours; exploring arrangements with Go Transit for offering seamless transfers, ticketing and pricing; assessing whether there is a business case for restoring services to Barrie and Peterborough and for summer and ski-season weekend peak services to relieve congestion on the highway system; and examining the possibility of partnerships with municipalities and the provinces to assist in the development of new services and enhancement of stations. This means that VIA Rail services into Toronto and Montreal could be expanded under a new initiative aimed at cutting pollution. VIA's commuter strategy is in its early stages. Further studies and discussions with agencies/corporations such as GO Transit are required before the strategy is implemented.
- **Ban multiple trailer tracks from all highways and limit truck driver work hours to a maximum of 10 per 24 hours.** Responsibility for commercial vehicle safety is shared between the federal and provincial/territorial governments. The federal government, under the *Motor Vehicle Transport Act*, has jurisdiction over the safe movement of carriers between provinces/territories. Each of the provinces and territories, along with municipalities, is responsible for highway design, construction, and maintenance as well as driver, vehicle, and traffic regulations and enforcement. A review of National Safety Code Standard # 9—Hours of Service is being conducted under the Canadian Council of Motor Transport Administrators (CCMTA), which serves as a forum to harmonize regulations and policies across Canadian jurisdictions. Proposals put forward by the CCMTA are aimed at reducing maximum on-duty time and increasing off-duty time. However, further consultation is required before Transport Canada and the provinces/territories consider revising their regulations. The intent is that all Canadian hours of service regulations will be based on a common standard and will, therefore, be consistent. As a final note, the use of multiple trailer trucks on highways falls exclusively within the jurisdiction of the provinces.
- **Fund research into maintenance of ecological connectivity in highway-dominated landscapes.** As noted, highways fall under provincial jurisdiction. However, where funding for highway construction is provided by the federal government, the *Canadian Environmental Assessment Act* is engaged. Such projects are required to undergo an environmental assessment to minimize the impacts on natural systems.

Genetically modified organisms (petition No. 23)

Petition

Petitioners: Sierra Legal Defence Fund on behalf of the Canadian Institute for Environmental Law and Policy (CIELAP), Council of Canadians, and two Canadian residents

Date: 9 May 2000

Summary: The subject matter of the petition concerns the release into the environment and/or the presence of genetically modified organisms (GMOs), which, in the petitioners' view, may have had, and in some instances already have had, adverse and/or unknown effects on the environment. Over the years, there has been a rapid commercialization of agricultural biotechnology in Canada. Modern biotechnology research is rapidly expanding into new areas, and the commercialization of genetically modified fish, animals, and trees is on the horizon.

The petitioners raised concerns and posed questions on federal laws, regulations, and policies concerning GMOs. They suggested that concern about the regulatory treatment of GMOs has been mounting worldwide, prompting many countries to endorse the precautionary principle and take action to ensure public health. The petitioners submitted that the Government of Canada has confirmed in its Guide to Green Government that there are three dimensions to sustainable development that must be integrated to ensure that this goal is met: social, economic, and environmental.

Such an integrated approach must be based on sound science, including recognition of the precautionary principle, which underscores the importance of taking early action in the face of scientific uncertainty. The petitioners further submitted that the Guide recognizes that in order to achieve an integrated approach, environmental policy can no longer be reactive, responding to problems after they have developed. In the petitioners' view, these principles lie at the very core of biotechnology regulation.

The petitioners discussed the risks associated with GMOs. In their view, the release of GMOs into the environment and the introduction of GMO foods into the global food chain have created a new generation of unprecedented environmental, health, ethical, and social concerns. The petitioners described in detail risks to the environment, human health, and sustainable development. They also discussed social and ethical concerns. In addition, the petition included an overview and assessment of Canada's federal regulatory regime for biotechnology and food safety.

The petitioners concluded that the regulation of biotechnology in Canada is deficient in a number of ways. They described six main areas of concern: conflicts of interest with regulatory agencies; inadequate legislative foundation; inadequate assessment process; gaps in the existing system; lack of accountability; and denial of the right to choose.

Petition requests

Review of laws, regulations, and policies. The petitioners asked the federal government to assess whether the existing regulatory system for GMOs is consistent with the principles of sustainable development. They asked that the existing regulatory system (laws, regulations, policies, and institutional arrangements) be reviewed, with an emphasis on the following questions:

- **Question 1:** Does the existing regulatory system provide for the evaluation and assessment of biotechnology products from a sustainable development perspective before they are introduced into Canada, including their potential immediate and long-term adverse social and economic impacts?
- **Question 2:** Does the existing regulatory system for biotechnology provide for the clear separation of regulatory and promotional roles among different agencies involved in the promotion and regulation of biotechnology?
- **Question 3:** Does the existing system meet the requirements as set out in Article 8(g) of the Convention on Biological Diversity? In other words, is the government adequately considering the impacts of biotechnology products on the conservation and sustainable use of biodiversity, while also taking into account effects on human health?
- **Question 4:** Does the existing system meet the requirements as set out by Parliament in Parts 5 and 6 of the *Canadian Environmental Protection Act* that all biotechnology products are subject to pre-manufacturing or import notification and assessment of their potential "toxicity," as defined by the Act, before their introduction into Canada?

Suggested measures. The petitioners believe that the following measures need to be adopted to protect Canadians' health, safety, and environment, and to ensure that the Government of Canada's policies and practices with respect to biotechnology are consistent with the principles of environmental, social, and economic sustainability.

- **Enact new legislation.** Given that much of the science surrounding GMOs is new, with accompanying new risks, legislation must be enacted that incorporates appropriate safeguards and measures. With the exception of the *Canadian Environmental Protection Act, 1999* (CEPA, 1999), the existing legislative frameworks are not specifically intended to deal with these products or the specific risks they pose.
- **Ensure independent, governmental evaluation and testing of all biotechnology products.** Assessments should take into account a range of growing environments and include post-release monitoring of performance to test the potential for instability across locations and seasons.
- **Establish clear evaluative criteria.** This includes an improved safety standard that takes into account the potential immediate and long-term direct or indirect harmful effects on human health, the environment, and the conservation and sustainable use of biological diversity of biotechnology products. This should include

consideration of impacts on sustainable agricultural practices, such as integrated pest management and organic farming.

- **Clearly separate regulatory and promotional functions among agencies.** In particular, the promotional activities of the Canadian Food Inspection Agency must be terminated, or its regulatory functions transferred to another agency with a clear and overriding mandate to protect human health, the environment, and biological diversity.
- **Make labelling of genetically modified products mandatory.** Mandatory labelling will not only ensure public and environmental health and safety, but will also allow food risks to be monitored in the long-term.
- **Adopt measures to ensure accountability and transparency.** Measures are required to provide for public participation in decision making. These include public notice and comment periods prior to approval for manufacture, use, import, or export of new biotechnology products; public access to industry submissions for approval; and public records of all government decisions on approval of genetically modified products.

Reply

Federal departments responsible for reply: Agriculture and Agri-Food Canada, Environment Canada, Fisheries and Oceans, Health Canada, Industry Canada, Natural Resources Canada

Date of reply: 7 September 2000

Statutory deadline met? Yes

Summary of ministers' reply: The ministers of the six departments collaborated to provide a joint response to the petition. The ministers stated at the outset that, overall, they believe that Canada's existing regulatory system provides for the risk assessment and management of biotechnology products from a sustainable development perspective. The response was structured to focus on the following:

- the sustainable development strategies of individual departments and agencies involved in the biotechnology regulatory system (paragraphs 10 to 14 and Annex B of the response);
- the 1993 Federal Regulatory Framework for Biotechnology (paragraphs 15 to 22); and
- the responses to the petitioners' questions and suggested measures (paragraphs 23 to 75).

Sustainable development strategies. A portion of the response described the amendments to the *Auditor General Act* that required Category 1 departments and agencies to table sustainable development strategies in the House of Commons in 1997 (and update them every three years). It is stated that the definition of sustainable development that arose from the World Commission on Environment and Development provides an important reference point for departments required to develop strategies, as does s. 21 of the *Auditor General Act*. The ministers stated that the response shows that many of the core concepts of sustainable development are already reflected in the federal approach to the regulation of biotechnology. They also noted that development of regulations for biotechnology products is only one of several approaches or elements identified in departmental strategies to meet Canada's sustainable development objectives. Further detail on these objectives is provided in Annex B of the response.

Federal Regulatory Framework for Biotechnology. The ministers began by noting that the framework resulted from an agreement among federal regulatory departments on principles for an efficient, effective approach for regulating biotechnology products. The six principles enunciated in the framework were approved on the basis that they would assure that the benefits of biotechnology products and processes would be balanced with the need to protect human health, animal health, and the environment. The framework maintains Canada's high standards for the protection of the health of workers, the general public, and the environment; uses existing legislation and regulatory institutions to clarify responsibilities and avoid duplication; continues to develop clear guidelines for evaluating biotechnology products that are in harmony with national priorities and international standards; provides a sound scientific database on which to assess risk and evaluate products; assures that both the development and enforcement of Canadian biotechnology regulations are open and include consultation; and contributes to the prosperity and well-being of Canadians by fostering a favourable climate for investment, development, innovation, and adoption of sustainable Canadian biotechnology products and

processes. The ministers suggested that these six principles reflect that the Government of Canada's approach to assuring safety in the use of biotechnology is a cautious and sustainable one.

With respect to the first principle, the ministers noted that the maintenance of Canada's high standards for protecting human health and the environment is carried out by federal regulatory departments and agencies without compromise. For new biotechnology products, this means that they will be assessed based on the established procedures for identification of relevant safety concerns. Novel products are thoroughly scrutinized for their safety before they are permitted to be released into the environment or allowed to be used in the marketplace.

The ministers described the advantages of using existing legislation and institutions to clarify responsibilities and avoid duplication (second principle). Departmental and agency responsibilities for regulated products as well as the pertinent legislation and regulations are set out in a table that forms part of the response (Table 1).

The response also outlines other biotechnology-related activities undertaken by the federal government and others. It indicates that Canada continues to evolve its strong knowledge base in this area by actively working within international fora to share information and consult with the specialists of other countries. This has resulted in an enhanced science-based regulatory system in Canada that complements and is consistent with the principles laid out by key international organizations. The ministers noted that Canada has served as a model for countries developing their national regulatory frameworks and has provided training in safety assessment in South American countries.

Reply to petition requests

Review of laws, regulations, and policies—answers to specific questions on the federal regulatory regime

Answer to Question 1: The Government of Canada agrees that biotechnology products should be regulated from a sustainable development perspective before they are introduced into Canada, including understanding their potential immediate and long-term impacts. The 1993 Federal Regulatory Framework For Biotechnology requires departments and agencies to consider “the prosperity and well-being of Canadians” in the development of regulations, including provisions for public input into the development of these regulations. As a result, decisions to establish regulations have been made with consideration of social and economic impacts, including an analysis of immediate and long-term impacts. This approach is considered in the development of regulatory proposals, including those addressing risk analysis of biotechnology products and is consistent with the Government of Canada Regulatory Policy. This policy indicates that when regulations address health, social, economic, or environmental risks, immediate and long-term socio-economic impacts, including impacts on the environment and sustainable development, are to be considered in detail. These considerations are clearly reflected in the Regulatory Impact Analysis Statements, a series of publicly available documents that must accompany regulatory proposals.

The ministers assert that the existing regulatory system for biotechnology provides for the necessary safeguards to effectively protect human health and the environment, including biodiversity. The government remains committed to the continuous improvement of the regulatory system within the context of the existing regulatory framework for biotechnology products and it will continue to seek and implement, as appropriate, advice from outside experts. It has announced a special initiative entitled The Regulation of Genetically Modified Foods. The government will also fund improvements to the regulatory system to keep ahead of the demands of this technology. It demonstrated this commitment in the most recent budget, by allocating \$90 million to these efforts.

Answer to Question 2: The ministers stated that the Government of Canada recognizes the importance of separating its regulatory and promotional functions. To this end, the government has assigned different and distinct mandates to its various departments and agencies. By way of example, the legislative and regulatory responsibility for health and environmental assessment of biotechnology products is divided among the Canadian Food Inspection Agency, Health Canada and its Pest Management Regulatory Agency, Fisheries and Oceans, and Environment Canada; promoting economic development of biotechnology, such as export market development, is the responsibility of Industry Canada, Agriculture and Agri-Food Canada, the Department of Foreign Affairs and International Trade, and Natural Resources Canada. These mandates are voted on by Parliament, and ministers are accountable back to Parliament. The response provides detailed information describing how the various roles and responsibilities of the departments and agencies named in the petition are kept separate and accountable to Parliament and Canadians.

Answer to Question 3: The Government of Canada feels that by protecting humans and the environment, under its existing regulatory system, it is also protecting and preserving biodiversity as intended in Article 8(g) of the Convention on Biological Diversity. After being one of the first countries to sign and ratify this international agreement, Canada has continued to commit itself to the conservation and sustainable use of biodiversity through the 1996 Canadian Biodiversity Strategy. According to the ministers, Canada's regulatory system reflects these commitments. Provisions of the *Canadian Environmental Protection Act, 1999* are described, and reference is made to other relevant pieces of federal legislation including the *Seeds Act*, *Feeds Act*, *Fertilizer Act*, the *Health of Animals Act*, *Pest Control Products Act* and the *Food and Drug Act*. The ministers also noted that Fisheries and Oceans is developing regulations on research and rearing of transgenic aquatic organisms, under the *Fisheries Act*.

Answer to Question 4: The *Canadian Environmental Protection Act, 1999* (CEPA, 1999) came into force on 31 March 2000, with the exception of the provision relevant to the regulation of biotechnology products (ss. 106(7)), which will come into force on 13 September 2001. This will complete the implementation of CEPA, 1999. Therefore, the question proposed by the petitioners addressed a government process that is still under way, and it would be premature to determine what the Governor in Council may conclude pursuant to ss. 106(7) of CEPA, 1999 prior to 13 September 2001.

Suggested measures. The detailed replies to each of the six suggested measures outlined in the petition are summarized below.

- **Enact new legislation.** The Government of Canada considers that the use of existing acts, which in some cases have effectively protected the environment and the health and safety of Canadians for over a century, has value and a number of advantages over redrafting legislation to address technological advances such as new biotechnology techniques. Canada has taken the approach of amending legislation to assure continuous improvement, particularly when dealing with dynamic technologies such as biotechnology. This is accomplished through statutory review clauses and the amendment of regulations. Accordingly, it has instituted regulatory assessment processes based on sound science and the generally accepted premise that it is the product itself, rather than the technology or process, that should trigger the need for regulation. Some recent and future initiatives are outlined in the response. Reference is made to the *Pest Control Products Act*, the Novel Foods Regulations under the *Food and Drug Act* as well as the 1996 amendments to the Feeds, Fertilizers, Health of Animals, and Seeds Regulations. Draft regulations on transgenic aquatic organisms will soon be published in the *Canada Gazette, Part 1*.
- **Ensure independent, governmental evaluation and testing of all biotechnology products.** The Government of Canada does conduct an independent evaluation of biotechnology products. During a safety assessment, regulators may determine that additional testing or verification is required. This additional work may be carried out by the government or by product proponents under the government's direction. Safety assessment based on the provision of information by product proponents is a standard approach supported by several international organizations.

As specified by standards or guiding principles set by those organizations, regulatory authorities also set out the data requirements and the manner in which these data are to be generated (including detailed documentation of testing). The U.S., the European Union, Japan, and Australia/New Zealand are examples of other jurisdictions that enforce these pre-market controls for products. It is the statutory responsibility of Canadian departments and agencies to carry out risk-based evaluations of these data prior to allowing a product to be manufactured, imported, or sold. Information provided is set out in regulations and guidelines. The data review and evaluation are extremely rigorous and include a scientific assessment of the results, as well as the protocols and methodologies used to derive the information. Furthermore, the provision of data by the applicant is only one component of the information used by regulatory scientists to evaluate new biotechnology products.

If a product gains market approval, it is the legal responsibility of the proponent to provide the Government of Canada with additional information on any untoward observations or effects. The government may carry out post-marking sampling, auditing, and testing or change its regulatory decisions, in response to additional information provided by the proponents, the public, or advances in scientific knowledge. Post-release

monitoring is ordinarily required for products in various ways; additional quality control, post-market surveillance, and compliance and enforcement measures are also in place.

The government is willing to consider ways in which independent data testing, or verification of information provided by product proponents, can be conducted more broadly than it is today. The advice of federal boards is anticipated in this matter.

- **Establish clear evaluative criteria.** According to the ministers, the regulatory departments and agencies use clear evaluative criteria. Information requirements set out in federal regulations are listed in Table 1 (referenced above). A list of corresponding federal guidelines that specify the detailed information requirements needed to conduct the various product safety assessments are also provided in another table that forms part of the response (Table 2).

According to the ministers, Health Canada already takes a comprehensive and rigorous approach to assessing the safety of all novel foods, including those derived from biotechnology. This approach is described in some detail.

The ministers also noted that new types of novel and biotechnology-derived products are expected to become available and the federal government is looking ahead. They pointed to the establishment of an Expert Scientific Panel. The Panel, which was established by the Royal Society of Canada on 17 February 2000, will provide advice to the ministers of Health, Agriculture and Agri-Food, and the Environment, on the scientific regulatory capacity and capabilities needed to meet the next generation of food biotechnology products. The recommendations of the Panel will provide critical guidance to ministers and the public on future evaluation criteria and information requirements needed to keep the regulatory system evolving with the pace of new biotechnology applications.

- **Clearly separate regulatory and promotional functions among agencies.** The ministers referred to the response provided to question 2 above, which addresses this matter in a broad federal context and provides detailed information describing how the various roles and responsibilities of the departments and agencies named in the petition are kept separate and accountable to Parliament and Canadians. They then elaborated on the role of the Canadian Food Inspection Agency (CFIA). They noted that the Agency reports administratively to the Minister of Agriculture and Agri-Food and is not involved in economic promotional activities related to biotechnology products. The ministers added that the Government of Canada recognizes the need to increase public awareness of the function and accountability of Canada's regulatory system.
- **Make labelling of genetically modified products mandatory.** The ministers stated that in developing labelling policy, the Government of Canada is committed to giving due consideration to the outcomes of the following initiatives:
 - a project launched by the Canadian Council of Grocery Distributors and the Canadian General Standards Board to develop a Canadian standard for the voluntary labelling of foods obtained or not obtained through genetic modification;
 - a study started by the Standing Committee on Agriculture and Agri-Food on mandatory labelling of genetically modified foods; and
 - deliberations under the Codex Committee on Food Labelling. This is the key international forum addressing this topic and Canada has been requested to continue in its role as chair of a working group on labelling of foods from biotechnology.

Information on the federal organizations that are responsible for food labelling policies is also provided. Health Canada and the CFIA share responsibility in this area under the *Food and Drugs Act*, the *Consumer Packaging and Labelling Act*, and other legislation.

- **Adopt measures to ensure accountability and transparency.** According to the ministers, by making the federal approach accountable and transparent, the Government of Canada has assured that the public has had the opportunity to fully participate in the development and implementation of the regulatory system for biotechnology products, including at the policy formulation level. The government has carried out consultations on biotechnology regulation, and input has been provided through a number of fora.

Regarding the communication of individual regulatory decisions to the public, federal regulatory authorities such as Health Canada (including its Pest Management Regulatory Agency) and the CFIA already prepare and publish decision documents on safety assessments of novel products, including those obtained through biotechnology. Furthermore, CEPA, 1999 requires that an “environmental registry” be created, which will be a comprehensive on-line source of public information relating to activities under CEPA. The ministers also discussed the level of public participation and governmental accountability in the regulatory system by reviewing some of the key points of the Government of Canada Regulatory Policy 1999.

In closing, the ministers noted that the suggested measure put forward by the petitioners raises a number of unresolved issues, including fundamental questions of privacy, international trade obligations, intellectual property rights, and regulatory policy. The Government of Canada recognizes that there is an ongoing debate on mechanisms that will improve transparency of all regulated products of new technologies, including biotechnology, beyond the current practices of Canada and other countries. The government is actively seeking ways of addressing these concerns in international fora and domestic research and study groups.

Sustainable forestry north of 60° latitude (petition No. 24)

Petition

Petitioners: The Yukon Conservation Society, The Southeast Yukon Proper Land Use Society

Date: 8 August 2000

Summary: The petitioners are concerned about a proposal put forward by Indian and Northern Affairs Canada that would allocate a significant amount of commercial timber resources of the southeast Yukon through Timber Harvest Agreements (THAs). The petitioners feel that the proposed allocation of long-term forestry tenures through THAs is being done in the absence of regional forest land-use planning. They emphasize that the southeast Yukon represents one of the last largely untouched boreal forests in Canada. According to the petitioners, the proposed plan, as it stands, is contrary to the goals outlined in the Department’s sustainable development strategy.

The petitioners suggested several actions that would, in their view, ensure that forestry development proceeds in a sustainable manner. Some of these actions relate to up-front planning and public participation. They emphasized that planning is the hallmark of sustainable development and that in order to meet this objective, planning must precede development. They suggested that strategic-level planning leading to a regional forest land-use plan must occur prior to the establishment of THAs in order for the proposal to be considered sustainable. In the absence of a regional forest land use plan, THAs, in the petitioners’ view, become templates for development. According to the petitioners, strategic-level planning would encompass planning in areas such as biodiversity management, protected areas management, wildlife habitat, watersheds, access, visual quality, and tourism. Furthermore, the petitioners feel that there is inadequate timber inventory data available for the region in question. As a consequence, there would be no way to ensure that logging will be sustainable in any THA.

The petitioners asked the Department to respect the Yukon Forest Strategy and the Yukon Protection Area Strategy. The former was developed in 1998 with the contribution of over 800 individuals representing various stakeholders from across the Yukon and makes a strong commitment to sustainable forest practices. Moreover, the petitioners feel that the public consultations that have been conducted so far are insufficient.

In conclusion, the petitioners made two substantive recommendations to the Department that they say will ensure sustainable forest development in the Yukon:

Action 1. Recognizing that there are economic and social considerations, the petitioners recommend interim Timber Harvest Agreements that are short-term (three to five years) and nonrenewable have *Canadian Environmental Assessment Act* Level II assessments, contain conservative annual allowable cuts, allow for landscape planning through consultation with governments, and be subject to land withdrawals.

At the same time, a regional forest land use planning committee for the southeast as well as a Yukon-wide Timber Harvest Agreement working committee should be established. Outcomes would include a regional forest land use plan and a THA policy for the Yukon.

Action 2. If action 1 were not to be carried out, then the petitioners recommend that the Minister consider a Strategic Environmental Assessment for the THA policy as per the 1999 Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals.

Reply

Federal department responsible for reply: Indian and Northern Affairs Canada

Date of reply: 18 December 2000

Statutory deadline met? Yes

Summary of Minister's reply: The Minister replied that Indian and Northern Affairs Canada has consulted with various stakeholders and a consultation package on Timber Harvest Agreements (THAs) has been released since the submission of the petition. Furthermore, the Minister emphasized that the Department must work in partnership with the Yukon Territorial Government, First Nations, and other federal agencies. While acknowledging the desirability of the planning initiatives outlined in the petition, the Minister noted that in reality they are dependent on many factors, including the availability of people and financial resources. The Minister also noted that a Yukon Land Use Planning Council has been established to direct regional planning processes.

Notwithstanding these limitations, the Minister stated that the Department is assessing the information provided by the petitioners and is prepared to consult further with the various parties involved. The petitioners are assured that all THAs will be subjected to an environmental assessment, under the *Canadian Environmental Assessment Act*. Under the proposed Timber Harvest Agreement process, the proponent would be required to develop a forest management plan, which would include such things as biodiversity management planning, watershed management planning, and access management planning, among others. It is evident that the THA system will require a much more in-depth planning process than is required from those individuals accessing timber through the timber permit regime currently in place. The Minister acknowledged the petitioners' concerns about this issue, but stated that the issue is open to public discussion and that, as of the date of the petition, no firm decisions have been made.

With respect to concerns about timber inventory, the Minister pointed to the existence of an Inventory Forester for the Yukon Region, who has undertaken a review of the Timber Supply Analysis work done prior to his arrival. This review, in conjunction with on-ground verification and photo analysis, indicates that the volumes proposed are indeed conservative when assigning annual allowable cuts to ensure sustainability of the forest.

The Minister added that the THA process fully supports the goals and objectives of the Department's sustainable development strategy. He suggested that it would be fundamentally wrong to focus solely on front-end planning at the expense of other considerations.

The Minister concluded by encouraging the petitioners to continue to participate in the ongoing consultation process.

Toxic substances/drinking water (petition No. 25)

Petition

Petitioners: Sierra Legal Defence Fund on behalf of The Beckwith Water Contamination Committee

Date: 11 October 2000

Summary: The petition concerns the federal government's failure to regulate trichloroethylene (TCE), a substance that was declared toxic under the *Canadian Environmental Protection Act* in 1993. It also concerns the need to revisit the Canadian Drinking Water Guideline for TCE in light of new scientific evidence.

The petitioners are all residents of Beckwith Township, a small Ontario community near Ottawa. At the date of the petition (11 October 2000), TCE and its degradation products had been detected in the water supply of 237 homes in Beckwith. TCE is a highly volatile liquid used primarily in metal degreasing operations, and can be dissolved in groundwater. The suspected source of the contamination is an abandoned landfill and scrap yard. The plume of dissolved TCE in the aquifer is estimated to be nine kilometres long and is growing in size. The following outlines why this matter is of urgent concern to Beckwith residents.

In 1993, TCE was assessed as a "priority substance" by Health Canada and Environment Canada. The assessment concluded that TCE should be classified as a "probable human carcinogen" and it was designated as a "toxic substance" under the *Canadian Environmental Protection Act* (CEPA) that same year. Following such a designation, the government then decides what steps to take (including regulation) to control the release and use of the substance. A report titled "Strategic Options for the Management of Toxic Substances Trichloroethylene and Tetrachloroethylene in Solvent Degreasing," prepared by Environment Canada, recommended that regulations for the quantities of TCE used by industry be put in place before 1 January 1998. However, despite these findings and later recommendations, and seven years after the assessment, the federal government has taken no regulatory steps to control or limit the release of TCE into the environment.

Further, the Canadian Drinking Water Guideline for TCE (established in 1987) sets a non-enforceable objective of 0.05 mg of TCE per litre of water. This level far exceeds that set by the United States Environmental Protection Agency (U.S. EPA), which is 0.005 mg/L.

TCE has been detected in the water supply of 237 homes in Beckwith Township, some with levels as high as 0.1 mg/L, which is twice the level of the Canadian Guidelines and 20 times that of the U.S. EPA standard. However, only 24 homes are receiving treatment of their water (by a water treatment system provided by the Ontario Ministry of Environment). Treatment is being provided only in the homes where TCE levels in the drinking water have been detected in excess of the Ontario Drinking Water Objective and the Canadian Guidelines (at 0.05 mg/L). Although all homes that have tested positive are being provided with bottled water for drinking, this does not account for the multiple pathways for exposure to TCE. Approximately 200 homes are left to accomplish daily household tasks using TCE-contaminated water.

According to the petitioners, a recent analysis of over 80 publications and reports on the cancer epidemiology of TCE found a stronger association between TCE and cancer of the kidney and liver than previously thought, with some support for an association with non-Hodgkin's lymphoma and possible association with cervical cancer.

In light of the situation, the petitioners made four requests of the federal government:

- Lower the Canadian Drinking Water Guideline for TCE to a level equal to or lower than that set by the U.S. EPA, to ensure protection of human health.
- Regulate Trichloroethylene under the *Canadian Environmental Protection Act*.
- Ensure a safe supply of water (for all household uses) for all affected Beckwith residents.
- Provide funding and assistance to ensure that Beckwith's water supply is cleaned up as soon as possible.

Reply

Federal departments responsible for reply: Health Canada, Environment Canada

Date of reply: 27 February 2001

Statutory deadline met? Yes

Summary of ministers' reply: The ministers of Health and the Environment collaborated to provide a joint response to this petition. They discuss each of the petitioners' four requests in turn.

The Canadian Drinking Water Quality Guideline for TCE. This part of the response starts with a description of Health Canada's role and responsibilities as reflected in the *Department of Health Act* and the division of powers under the Canadian constitution. It is noted that historically, drinking and recreational waters have been seen as natural resources, and that water quality programs have been implemented and maintained by the provinces/territories. Health Canada's Water Quality Program is also described. The mandate of the program is the protection of public health from microbial pathogens and chemical and radiological contaminants found in drinking and recreational water supplies. Health Canada

has collaborated with the provinces and territories for over 30 years to develop safety guidelines for drinking water and recreational water. One result of this collaboration has been the Guidelines for Canadian Drinking Water Quality, established by the Federal/Provincial Subcommittee on Drinking Water. The Guidelines are used by the provinces/territories as a basis to establish their own enforceable drinking water regulations, objectives, or guidelines. This Health Canada program plays a key leadership role in this area. The Department uses the best available scientific evidence to develop risk assessment information and provide scientific advice and support on drinking water. Since the development of the Canadian Drinking Water Guideline for TCE in 1987, new published research has indicated that inhalation exposure to TCE from a drinking water source, such as showering or bathing, is also a significant pathway (in addition to ingestion). Based on this new research, the Federal/Provincial Drinking Water Subcommittee decided in May 2000 to increase the priority for reassessment of the TCE guideline, and Health Canada is now actively reviewing the Guideline for TCE. The Minister of Health states that the review of the adequacy of the Guideline will be expedited and the Department will work through existing federal/provincial mechanisms to encourage the earliest possible implementation of any forthcoming recommendations relating to revision of the TCE guideline.

Take action to control TCE as a toxic substance. Environment Canada will move as expeditiously as possible to bring into force regulations for TCE under the *Canadian Environmental Protection Act, 1999*. It is expected that regulations will be published in Part I of the *Canada Gazette* by mid-2001 to control its use in solvent degreasing, the major use of TCE. Outstanding issues are now nearing resolution. The ministers noted that TCE was declared toxic in 1993 under CEPA 1988, which did not stipulate a time frame for action to control a toxic substance.

The petition response describes in general terms the process for developing regulations at the federal level. According to the ministers, the time frame for developing regulations in the 1980s and 1990s varied considerably (four to seven years), depending on the input of stakeholders.

The response then goes on to provide a detailed summary of the history surrounding the regulation of TCE. In 1993, TCE was declared toxic and a "probable carcinogen." In 1994, a multi-stakeholder "Issue Table" was established comprised of representatives from industry, the provinces, Environment Canada, and environmental non-governmental organizations. This group was to provide recommendations to Environment Canada on suggested measures for addressing TCE releases from industrial sources. The group recommended that a regulation be developed under CEPA 1988 to control the quantities of TCE used in solvent degreasing operations, with first a freeze and then a 65 percent reduction in consumption. In February 1997, the Minister of Environment announced that Environment Canada would proceed with these recommendations, and the regulatory development process was subsequently initiated.

It is suggested that the nature of the federal regulatory policy, and the procedures that are to be applied to ensure full input and consultation, dictate a multi-year regulation development process.

The ministers note that TCE was declared toxic under CEPA 1988, which did not impose time constraints for regulation development. However, CEPA, 1999 does require that, within two years of a declaration of the toxicity of certain substances, a proposed regulation or other instrument "respecting preventive or control actions" for the substance must be proposed by the ministers of Health and of the Environment. The Minister of the Environment has 18 months following the date of publication of the proposed regulation or instrument in Part I of the *Canada Gazette* to publish the final regulation or instrument in Part II of the *Gazette*.

Provide Beckwith Township residents with a safe, TCE-free water supply. This is a provincial responsibility. It is the ministers' understanding that the Province of Ontario is providing drinking water treatment devices and bottled water to those deemed to be at risk and is also looking at longer-term solutions to this problem.

Provide funding to ensure that Beckwith's water supply is cleaned up as soon as possible. This is also a provincial issue. However, Beckwith Township may wish to apply for financial assistance under the National Municipal Infrastructure Program or under the Green Enabling/Investment Funds funded under Budget 2000 and managed by the Federation of Canadian Municipalities; these programs may have relevance to both the provision of a safe water supply and resolution of the long-term contamination problem. Upon request of the Government of Ontario, the federal government will assist by providing scientific expertise to address the TCE contamination of the water supply of Beckwith Township. The ministers share the petitioners' concern for the environment as well as the health and well-being of the citizens of Beckwith.

Administration of the Migratory Bird Regulations (petition No. 26)

Petition

Petitioners: Sierra Legal Defence Fund on behalf of The Animal Alliance of Canada, The Ontario Federation of Ornithologists, and a Canadian resident (on behalf of Friends of the Spit)

Date: 24 October 2000

Summary: The alleged destruction of several birds nests on the Leslie Street Spit on Toronto's waterfront is the environmental matter giving rise to this petition. According to the petitioners, on 1 June 1998, a bulldozer graded lands that hosted a substantial colony of common tern nests, thus destroying several active nests. Terns are migratory birds and are protected in Canada under the *Migratory Birds Convention Act* (MBCA). The Act and the Migratory Bird Regulations are administered by the Canadian Wildlife Service (CWS), the branch of Environment Canada that is responsible for the protection and management of migratory birds.

According to the petitioners, the Toronto Harbour Commissioners (THC) was responsible for the grading that was done on the Spit. The CWS was responsible for issuing the permit that authorized the THC to do the work. The purpose of the petition is to require the CWS to examine how the destruction that occurred on 1 June 1998 was "purported" to be authorized and how improvements can be made in the administration of the permits process so that problems like this do not reoccur.

Three separate issues of concern form the basis for this petition:

- It is alleged that the Canadian Wildlife Service knowingly allowed the grading of the site to proceed prior to granting any formal written approval, thereby violating the Migratory Bird Regulations.
- The permit was issued under s. 26.1(1) of the Regulations. The petitioners argued that this section does not permit the bulldozing of nests and destruction of eggs. It only applies to collecting, destroying, and disposing of eggs of migratory birds likely to cause damage or danger to health, safety, agricultural, or other interests in a community. Moreover, they argue that there is absolutely no evidence that the terns were causing any damage or danger.
- Finally, the petitioners took the position that the permit was issued for inappropriate reasons. According to the petitioners, the Canadian Wildlife Service placed the convenience of the Toronto Harbour Commissioners ahead of the protection of the nest site. They noted that the Service has defended the decision to issue the permit on a number of grounds. Among these was the need to conduct a survey in an emergency fashion. The petitioners disputed the assertion that there was an emergency and suggested that the need to complete a survey was not an "emergency" that could not have either been done earlier or later to accommodate the nesting terns.

The petitioners believe that in order to ensure better migratory bird conservation, and to ensure that the CWS policies and practices are consistent with principles of sustainable development, the following requests should be met:

- The Canadian Wildlife Service should be held accountable for the destruction of the active tern nests at the Leslie Street Spit. The CWS should acknowledge the errors of judgment and procedure that occurred and lay out a defined action plan and set of policies and standards to prevent similar errors from occurring in the future.
- Environment Canada should issue a clear statement to the effect that no work can be conducted that would otherwise violate the *Migratory Birds Convention Act* until the CWS has issued a formal, written permit. In addition, the CWS should not misuse its jurisdiction under the Act to permit activities that don't properly fall within the provision of permitting regulations (such as s. 26.1 of the Regulations).
- Environment Canada and the CWS should issue a clearer set of standards (beyond current policy) to better define the criteria required to obtain a permit under the Act, especially under s. 26.1 of the Regulations.
- The CWS should effectively monitor and enforce permits granted under the Regulations.
- Where requests for permits under the Regulations are made, the Canadian Wildlife Service should be required to work with the requester to resolve the situation in the least intrusive manner possible for migratory birds and nests.

Reply

Federal department responsible for reply: Environment Canada

Date: 13 March 2001

Statutory deadline met? Yes

Summary of Minister's reply: The Minister emphasized at the beginning of his reply that officials of the Canadian Wildlife Service (CWS) are concerned about the well-being of wildlife populations and their actions are motivated by this concern. They are faced with difficult decisions in the field. Although these decisions are made with the interest of wildlife as the paramount consideration, they may not satisfy all interested parties. In such situations, there may be different interpretations of actions taken.

It is the Minister's belief that in this case, CWS staff acted within the authority of the regulations under the *Migratory Birds Convention Act*, with the intent of protecting the common tern population at the Leslie Street Spit. The Minister emphasized that Environment Canada has made considerable efforts over the years to study and conserve colonial birds on the Spit. In the instance cited, CWS staff first approached the Toronto Harbour Commissioners (THC) to protect the nesting terns. A permit was subsequently issued, with conditions to minimize disturbance to the birds. The THC co-operated in the remainder of the 1998 season, changing their timing and methods. In 1999, all the work was done outside of the nesting season, and in 2000 no grading work was done.

The Minister stated that it would be conjecture on the part of Environment Canada to comment on how many tern nests there might have been in 1998 or how many might have been destroyed. The Department does know that the major part of the nesting area was protected. The Minister noted that the common tern is not a species at risk either nationally or provincially.

The responses to the petitioners' specific requests follow.

- **The Canadian Wildlife Service should acknowledge that errors of judgment and procedure were made, and an action plan and other measures should be laid out to prevent similar errors.** The Canadian Wildlife Service does not agree that errors of judgment were made in issuing a permit to the Toronto Harbour Commissioners. The consequences were carefully considered in light of the knowledge that the common terns would nest again in or near the area of nest destruction. Conditions of the permit were designed to minimize disruptions to the larger nesting colony on the Spit.
- **The Canadian Wildlife Service should issue a statement clarifying the requirement that a formal, written permit be issued before work is conducted. The CWS should not misuse its jurisdiction under the *Migratory Birds Convention Act*.** The Minister acknowledges that the scaring off and killing of migratory birds require the issuance of a permit; however, situations may arise where judgment and flexibility are needed, particularly when severe damage or safety is at issue. In these rare circumstances, the ability to give verbal approval of actions, with conditions, based on the judgment of staff in the field, and to be followed by a written permit, should not be precluded.
- **Environment Canada and the Canadian Wildlife Service should issue a clearer set of standards to better define the criteria required to obtain a permit under the Act (especially under s. 26.1 of the Regulations) to the effect that any permit granted under the Act is a measure of last resort.** In most circumstances, the Canadian Wildlife Service require applicants to demonstrate that simple scaring techniques, habitat modification, or other more benign management techniques have been attempted before permits to kill migratory birds are issued. Issuance of scare or kill permits for migratory birds are extremely rare. It should be noted that the habitat of migratory birds can be altered or destroyed when the birds are not present. In such circumstances, the CWS works with landowners to minimize habitat disruption.
- **The Canadian Wildlife Service should effectively monitor and enforce permits.** Within the scope of available resources, the CWS does monitor and enforce the conditions of permits. Permit holders are required to keep accurate records of actions taken under the permit and to supply a written report upon expiration of the permit. The CWS inspects permit holders and investigates any irregularities.
- **The Canadian Wildlife Service should be required to work with permit applicants to resolve situations in the least intrusive manner possible.** Further to the previous comments, all requests for scientific and scare/kill permits of an exceptional nature, such as the request by the Toronto Harbour Commissioners, are reviewed by CWS biologists in consultation with enforcement staff. Alternatives are considered and discussed with applicants, with benign management practices being encouraged and, in many circumstances, required.

Decommissioning of railway lines (petition No. 27)

Petition

Petitioners: Algonquin Eco Watch, Federation of Ontario Naturalists, The Wildlands League

Date: 28 May 2001

Summary: The petitioners alleged that the decommissioning of the Canadian National Railways (CNR) mainline through Algonquin Provincial Park, Ontario, was not carried out in an environmentally responsible or timely manner. Their assertions are based on personal observations made in the vicinity of Cauchon/Little Cauchon Lake in the park as well as sampling and independent testing. Photographs and laboratory analyses were submitted in support of the petition.

According to the petitioners, CNR arranged for a contractor to remove the tracks and ties as part of the decommissioning work in 1997. To facilitate this removal, a right-of-way was prepared by bulldozing a path so that trucks could drive along the roadbed to load and to transport rails and ties. Much of the ballast used to maintain the roadbed through the park consists of slag brought from smelters in the Sudbury basin, which the petitioners say is known to contain many heavy metal contaminants. According to the petitioners, bulldozing caused ballast from the roadbed to spill into a specific brook trout nursery creek that drains into Little Cauchon Lake as well as a specific lake trout spawning bed. This not only introduced deleterious materials into the water, but also physically impeded ingress of brook trout fry to the upper reaches of the creek. In the case of the lake, the petitioners alleged that the slag damaged a lake trout spawning bed. They also highlighted the inherent danger to mammals and birds of ingesting and inhaling heavy metal particles and dust.

While the petitioners described the problems that they had observed at one location in the park, they suggested that this example may be indicative of a much more widespread problem along the length of the line. According to the petitioners, CNR mainline passes through six different watersheds, runs immediately alongside nine lake trout lakes, and crosses more than 40 potential brook trout nursery creeks as it traverses Algonquin Park. After three and a half years of correspondence to rectify this concern, no significant progress toward mitigation is apparent.

The petitioners have submitted an Application for Investigation under the Ontario *Environmental Bill of Rights* in order to get a response to their concerns from provincial authorities. The questions outlined in their petition are directed to departments at the federal level, namely Transport Canada, Fisheries and Oceans, and the Canadian Wildlife Service, part of Environment Canada.

Transport Canada

- Are you aware of a plan in place with an auditable schedule regarding the decommissioning?
- Does a specific protocol exist for railway decommissioning in Canada?
- If such a protocol exists, are you satisfied that it is being strictly adhered to in this instance?
- If such a protocol exists, could you forward a copy?

Fisheries and Oceans

- Do you agree that the bulldozing of slag containing excessive amounts of heavy metals into known and potential brook trout nursery creeks and onto known and potential lake trout spawning beds constitutes a violation under the federal fisheries regulations, with regard to "the placing or releasing of deleterious substances into or onto fish habitat?"
- As a result of the recent cancelling of the agreement with the Province of Ontario, wherein federal fisheries regulations were enforced by Provincial Conservation Officers, would you please outline in detail how your Department has compensated for, or dealt with, the resulting decline in enforcement capability?
- Have you investigated or would you plan to investigate these allegations relating to the placing of deleterious substances in or on fisheries habitat within Algonquin Provincial Park?
- If so, could you advise on your findings and the actions that your Department plans to initiate as a result?

Canadian Wildlife Service of Environment Canada

- Are you aware of other such situations in which ingestion of heavy metal particles has put the health of migratory bird species at risk? If so, could you provide documentation of such situations?
- In view of the high levels of known carcinogenic and toxic heavy metals contained in the slag samples examined from the CNR right-of-way through Algonquin Provincial Park, do you intend to conduct or would you consider conducting additional extensive, independent testing for the presence of heavy metals, or do you feel that our results are sufficient proof of a widespread problem that requires immediate correction?

Reply

Federal departments responsible for reply: Environment Canada, Fisheries and Oceans, Transport Canada

Status: Pending

Aquaculture and environmental assessment (petition No. 28)

Petition

Petitioner: A Canadian resident

Date: 29 May 2001

Summary: The petitioner expressed concern about the proposal by the P.E.I. firm Bounty Bay (Mussel King) to locate a 1,200 acre mussel farm in St. Ann's Bay, Cape Breton, Nova Scotia. The petitioner opposes the project on two grounds—the environmental assessment process and lack of credible supporting scientific evidence.

Environmental assessment. The petitioner alleged that the environmental impact assessment was performed by a private company contracted by Bounty Bay and that public access to the report was limited in a variety of ways. The petitioner suggested that this is not conducive to public involvement and pointed to the need for an open, fair, and transparent environmental assessment process. The petitioner requested that an independent assessment be undertaken or, at the least, a public hearing be held on this issue.

Scientific evidence. The petitioner suggested that the environmental impact assessment purporting to support this project was based on a computer model that was flawed in several respects:

- The computer model assumed that biodeposits remain suspended and do not settle, fouling the bottom.
- The model assumed there are no other demands on the seston (plankton and pseudofaeces) by existing fisheries in the bay.
- The model also assumed that seston depletion will have no environmental impacts beyond reduced yields for the mussel farm itself.
- The model assumed that the large-scale operation won't further affect the hydrographic processes in the harbour.
- The model fails to consider the environmental consequences and risks to native mussel species.

Reply

Federal departments responsible for reply: Environment Canada, Fisheries and Oceans

Status: Pending

Sustainable Transportation (petition No. 29)

Petition

Petitioners: Numerous Canadian residents

Date: 26 June 2001

Summary: The petitioners are residents of the National Capital Region and are employees of the Public Service of Canada. Their petition concerns an offer made by local transit authorities that would extend substantial savings to individuals in the National Capital Region if they purchase yearly transit passes through payroll deduction. The petitioners suggested that this program has the potential to realize significant environmental benefits through the increased use of public transportation and a reduced number of vehicles on congested roads and highways. According to the petitioners, the Treasury Board of Canada has refused to implement this program for federal public servants. They wish to draw this matter to the attention of the President of the Treasury Board Secretariat as well as the Commissioner, the Auditor General of Canada, parliamentarians, and the Minister of the Environment.

Reply

Federal departments responsible for reply: Environment Canada, Treasury Board Secretariat, Transport Canada

Status: Pending

Golf course development in an urban conservation park (petition No. 30)

Petition

Petitioner: Conseil régional de l'environnement et du développement durable de l'Outaouais (CREDDO)

Date: 30 May 2001

Summary: The petitioners expressed concern about a proposed golf course at the Hull Casino in Hull, Quebec. If developed, the golf course will extend into an urban conservation park that encompasses a small lake and is adjacent to the Gatineau River (Leamy Lake Park). According to the petitioners, part of the property is owned by the National Capital Commission. The project is currently undergoing an environmental assessment by Fisheries and Oceans pursuant to the *Canadian Environmental Assessment Act* (CEAA). The petitioners alleged that several of the inventories and surveys that have been conducted, most of which belong to the casino owner, Casiloc, are not available to the public. In this petition, CREDDO poses a series of questions to a number of federal departments about the golf course project:

Department of Canadian Heritage

- How does Canadian Heritage intend to reconcile its new policy respecting national parks with the threat posed by the Casino golf course to unique stands of trees and to an urban conservation park?
- Under what authority can the Minister permit the lease of federal land for a purpose that is not in the national interest and is not an national emergency?

Environment Canada

- How many components of the environment must be affected before a project is blocked? The present construction project poses a risk of serious adverse effects on wildlife species, plant species, a major river, and a lake.
- Does the Minister intend to hold public hearings under the CEAA on the Leamy Lake golf course and, if so, when?
- Can the Minister permit the disposition of federal lands when it is not in the national interest and when the environment is threatened?
- Is part of the property affected by the construction not considered marshland or wetlands as defined by the Federal Policy on Wetland Conservation?

- How does the Minister intend to protect the Leamy Lake Park ecosystem, given that with each negotiation with Fisheries and Oceans and Casiloc, one or two golf holes threaten one element of the environment or another? How can the Department reconcile all of this with its sustainable development and species and habitat protection policy?

Fisheries and Oceans

- How far along in the process has the Casino golf course project come since the CEAA was triggered? Does the Department intend to hold public consultations? Is the Screening Report pursuant to the CEAA complete and will it be made available to the public?
- Is the Minister aware of the studies conducted by Professor François Chapleau of the University of Ottawa on the various species of fish living and spawning in the Gatineau River?
- How is it that, after several changes to the golf course were requested, after a number of serious concerns were raised, and after the project was rejected in the fall of 2000, the project is still on the table? Are there not limits to the number of requests that a proponent can make for a given project? Is the spirit behind section 35(1) of the *Fisheries Act* not enough?

Natural Resources Canada

- In departmental correspondence with the proponent, several concerns were raised about a particular stand of hackberry trees. How does the Department intend to protect this stand?

Reply

Federal departments responsible for reply: Department of Canadian Heritage, Parks Canada Agency, Environment Canada, Fisheries and Oceans, Natural Resources Canada

Status: Pending

Highway extension through a federal park (petition No. 31)

Petition

Petitioner: Conseil régional de l'environnement et du développement durable de l'Outaouais (CREDDO)

Date: 30 May 2001

Summary: The petitioners expressed concern about the proposed construction of a highway (autoroute McConnell-Laramée) in the city of Hull, Quebec that will extend approximately 1.4 kilometres into Gatineau Park, a federal park that is managed by the National Capital Commission, a federal Crown corporation. The petitioners noted that the Quebec Environmental Public Hearing Board held hearings on part of the proposal; however, a number of issues are unresolved. Questions were addressed to a number of federal departments in this petition.

Department of Canadian Heritage

- How can the Minister reconcile the new Parks Canada policy, for which she is responsible, with the fact that the National Capital Commission (NCC) is authorizing the construction of a highway in Gatineau Park, which is also under her jurisdiction?
- How can the Minister reconcile the fact that the NCC is requesting that ramps be added to the highway, which will cause further encroachment on Gatineau Park and give vehicles greater access?
- Were plant, animal, and ecosystem inventories conducted in the planning stages in compliance with the *Canadian Environmental Assessment Act* (CEAA)?
- Under what authority can the Minister allow the disposition of federal land for the purpose of constructing a highway in a park when it is only in the local interest to do so?

Natural Resources Canada

- How does the Minister intend to protect the large white pines (about 10 of which are more than 300 years old) that are located near the highway right-of-way?
- Were surveys of tree species conducted in the project planning stage?

Transport Canada

- Does the Minister intend to request that the CEAA be triggered?
- Is a progress report being prepared?

Environment Canada

- Is the Wolffia marsh considered a wetland within the meaning of the federal Wetland Conservation Policy? Were other marshland areas inventoried?
- Does the Minister intend to hold hearings on the McConnell-Laramée highway pursuant to the CEAA?
- Can the Minister allow the disposition of federal lands when it is not in the national interest and when the environment is threatened?
- Is the construction of a highway in a conservation area to facilitate truck traffic not in violation of the spirit of the Federal Climate Change policy?

Fisheries and Oceans

- Have surveys been conducted of the fish species living in the streams and marshes affected by the construction of the highway?

Reply

Federal departments responsible for reply: Department of Canadian Heritage, Parks Canada Agency, Natural Resources Canada, Transport Canada, Environment Canada, Fisheries and Oceans

Status: Pending

Environmental and health effects associated with the fuel additive MMT (petition No. 32)**Petition**

Petitioners: Numerous Canadian residents

Date: 1 July 2001

Summary: The petitioners requested information from Health Canada regarding the gasoline additive MMT (Methylcyclopentadienyl Manganese Tricarbonyl). In support of their petition, the petitioners made a number of assertions. They referred to the poor air quality experienced in Southwestern Ontario and throughout the Hamilton-Toronto region during the last half of June 2001. The petitioners suggested that it is a known fact that much of the air pollution comes from automotive and industrial emissions. They also suggested that Health Canada continues to support the use of MMT in Canadian gasoline, based on a review of existing information published on 6 December 1994. The petitioners pointed to a 1995 report, authored by two members of the Toronto District Health Council, that calls for a ban on MMT. Finally, the petitioners noted a report by the National Round Table on the Environment and the Economy that indicates that Environment Canada did not support the use of MMT.

The petitioners asked Health Canada to explain what steps had been taken with regard to the following:

- re-examining the use of MMT, using studies done by neuro-toxic scientists from across Canada that were not included in the December 1994 report;

- examining the work of a California researcher on the relationship between levels of manganese in violent offenders and the incidence of violence in society; and
- applying the precautionary principle to ban all neuro-toxic substances and carcinogens from gasoline and diesel fuels in Canada.

Reply

Federal departments responsible for reply: Health Canada, Environment Canada (Environment Canada was asked to respond to the third request for information)

Status: Pending

Appendix B—Petitions received prior to 2000 (1 January 1996–31 December 1999)

Petition	Reply
Environmental assessment (petition No. 1)	
Petitioner: The Ecoforestry School in the Maritimes Date: 2 October 1996	Federal department responsible for reply: Atlantic Canada Opportunities Agency (7 February 1997) Summary: See Commissioner's Observations, Appendix C, 1998 Report of the Commissioner
Transportation policy (petition No. 2)	
Petitioner: Rail Ways to the Future Committee Date: 6 March 1997	Federal department responsible for reply: Transport Canada (3 July 1997) Summary: See Commissioner's Observations, Appendix C, 1998 Report of the Commissioner
Canada Infrastructure Works Program (petition No. 3)	
Petitioner: Transport 2000 Ontario Inc. Date: 9 March 1997	Federal department responsible for reply: Treasury Board Secretariat (24 October 1997) Summary: See Commissioner's Observations, Appendix C, 1998 Report of the Commissioner
Environmental assessment (petition No. 4)	
Petitioner: Graeme Pole Date: 3 March 1997	Federal department responsible for reply: Canadian Heritage (25 June 1997) Summary: See Commissioner's Observations, Appendix C, 1998 Report of the Commissioner
Oil and gas leaks and emissions (petition No. 5)	
Petitioner: Reverend W.A. Ludwig Date: 9 April 1997	Federal department responsible for reply: Natural Resources Canada (8 May 1997) Summary: See Commissioner's Observations, Appendix C, 1998 Report of the Commissioner
Canadian Mining Regulations (petition No. 6)	
Petitioner: Canadian Arctic Resources Committee Date: 16 April 1997	Federal department responsible for reply: Indian and Northern Affairs Canada (2 September 1997) Summary: See Commissioner's Observations, Appendix C, 1998 Report of the Commissioner
Resource management (petition No. 7)	
Petitioner: Queen's County Fish and Game Association Date: 25 June 1997	Federal department responsible for reply: Fisheries and Oceans (1 October 1997) Summary: See Commissioner's Observations, Appendix C, 1998 Report of the Commissioner

Petition	Reply
Effects of ozone depletion (petition No. 8)	
Petitioner: Friends of the Earth Date: 8 September 1997	Federal departments responsible for reply: Agriculture and Agri-Food Canada (23 March 1998), Environment Canada (21 May 1998), Fisheries and Oceans (19 January 1998), Health Canada (1 June 1998), Natural Resources Canada (8 June 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Multilateral Agreement on Investment (petition No. 9)	
Petitioner: Canadian Association of Physicians for the Environment Date: 14 January 1998	Federal departments responsible for reply: Environment Canada (17 August 1998), Department of Foreign Affairs and International Trade (22 May 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Harmonization Accord (petition No. 10)	
Petitioner: Canadian Environmental Law Association Date: 22 January 1998	Federal department responsible for reply: Environment Canada (19 May 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Crown obligations to First Nations (petition No. 11)	
Petitioner: Athabasca Chipewyan First Nation Date: 4 May 1998	Federal department responsible for reply: Indian and Northern Affairs Canada (10 August 1998) Summary: See Appendix A of this report
Environmental assessment (petition No. 12)	
Petitioner: Lake Petittcodiac Preservation Association Date: 15 May 1998	Federal department responsible for reply: Fisheries and Oceans (11 December 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Environmental assessment (petition No. 13)	
Petitioner: Scott Williamson Date: 29 June 1998	Federal department responsible for reply: Fisheries and Oceans (22 July 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Use of science (petition No. 14)	
Petitioner: West Coast Sustainability Association Date: 15 July 1998	Federal department responsible for reply: Fisheries and Oceans (16 November 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Environmental assessment (petition No. 15)	
Petitioner: Society for the Preservation of the Englishman River Estuary Date: 22 July 1998	Federal department responsible for reply: Fisheries and Oceans (27 November 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner

Petition	Reply
Environmental assessment (petition No. 16)	
Petitioner: Lakewatch Society-Lake Simcoe Date: 11 August 1998	Federal department responsible for reply: Fisheries and Oceans (3 September 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Environmental assessment (petition No. 17)	
Petitioner: Friends of the Farewell Date: 23 July 1998	Federal department responsible for reply: Fisheries and Oceans (23 November 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Sustainable forestry (petition No. 18)	
Petitioners: Brenda and Richard Oziewicz Date: 1 September 1998	Federal department responsible for reply: Indian and Northern Affairs Canada (26 November 1998) Summary: See Commissioner's Observations, Appendix B, 1999 Report of the Commissioner
Enforcement (petition No. 19)	
Petitioner: Alice Chambers Date: 30 November 1998	Federal departments responsible for reply: Fisheries and Oceans (23 April 1999), Environment Canada (21 April 1999) Summary: See Commissioner's Observations, Appendix C, 2000 Report of the Commissioner
Toxic substances (petition No. 20)	
Petitioner: Nelson A. Riis, M.P. for Kamloops and Highland Valleys, British Columbia on behalf of residents of the region Date: 25 August 1999	Federal department responsible for reply: Health Canada (27 October 1999) Summary: See Commissioner's Observations, Appendix C, 2000 Report of the Commissioner

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